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Butterflies of Clark County, Nevada

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Abstract. Clark County, the southernmost area of Nevada is in the northern portion of the Mojave Desert. This area is topographically diverse and with several distinct biotic communities. The butterfly fauna is also diverse with 125 taxa recorded within the county. Of these, at least 15 are non-resident strays. Five subspecies of widely ranging polytypic species are endemic. Over forty percent of the species have distributions mainly in the North American deserts; most of the remaining species are more widespread.

Butterflies have been recorded in all months but are most abundant from May through July. Of the species for which voltinism is known, more than one-third are univoltine, one-fifth are bivoltine and the remainder are multivoltine. The number of broods varies somewhat with habitat and elevations and, in some species, on the occurrence of summer rainfall.

Introduction

The distribution and occurrence of butterflies in Nevada are poorly known and there is very little literature pertaining to the state's butterfly fauna (Field *et al.* 1974). The only regional list is for the Carson Range in the western part of the state (Herlan 1962). There is also a recent list of the species known from the state (Harjes 1980). The butterfly fauna of adjacent California is known for the Mojave Desert in southeastern California (Emmel and Emmel 1973). Those of adjacent Arizona and Utah are known less well (Haskin 1914, Tidwell and Callaghan 1972). Nevada records are largely scattered through the literature, listed in the seasonal summaries published by the Lepidopterists' Society, in the Nevada State Museum and in various other collections.

We have resided in Las Vegas continuously since 1961. Our records and those of others who have lived in or visited the area are now sufficient to allow publication of an account and analysis of the county's butterflies.

Our private collection forms the basis for this report. In addition, the senior author has examined in whole or part several collections and has corresponded with others who have collected within the state. Over 13,000 specimens were viewed.

For each taxon, we briefly discuss what is known of its distribution, phenology and ecology in the county and, where pertinent, taxonomic comments and comparisons. Following this we list specimens examined, other reported occurrences, larval foodplants recorded in Clark County and resources used by adults. Specific records are not listed for many of the very common species except for certain species of interest or for unusual distributional or seasonal occurrences. Specimens examined are those actually seen by the senior author in his visits to various collections or those seen while in the field with other collectors (total number given first in parentheses). Numbers, distribution among the sexes and collection are indicated. Additional records include specimens reported to us by other collectors, sight records (largely by the senior author) and reports in the literature or seasonal summaries of the Lepidopterists' Society. Specimens in other collections are credited to the person (or institution) who maintains the collection and, if different, the person who reported the specimen to us. Sight records are indicated by an "s" following the observer. Literature citations are presented in the usual form. Records from the seasonal summaries are cited by the year of the summary (summ.) which is normally published in the second number of the News of the Lepidopterists' Society of the following year with occasional addenda in later numbers. Specimens reported in the summaries that were later seen are included under specimens examined. Foodplant records are those of the authors unless indicated otherwise and are categorized as adult association (adult assoc.), oviposition (ovip.), larvae and, in a few special cases, pupae. Adult resource (flowers, unless indicated otherwise) observations were entirely by the authors. Plant identifications were mostly by botanists at the University of Nevada, Las Vegas; plant nomenclature largely follows Munz and Keck (1963) and Beatley (1976). Time of day is based on the 24 hour clock (PST).

Butterfly nomenclature used herein follows dos Passos (1964) and later revisionary works where applicable. All comparisons and taxonomic determinations were made by the senior author. Low elevations generally pertain to "desert" below the Piñon-Juniper belt (*ca.* 6000′) and high elevations are above 6000′ in montane woodland and forest.

Collections which were examined or from which records were reported are as follows: D. E. Allen (DEA), R. Bailowitz (RB), A. Bean (AB), J. Brock (JB), Carnegie Museum (CM), D. Eff (DE), J. F. Emmel (JFE), C. D. Ferris (CDF), C. F. Gillette (CFG), P. J. Herlan (PJH), H. L. King (HLK), J. Lane (JL), R. L. Langston (RLL), C. S. Lawson (CSL), J. F. Leser (JFL), Los Angeles County Museum (LACM), C. D. MacNeill (CDM), D. Mullins (DM), Nevada State Museum (NSM), F. W. Preston (FWP), K. Roever (KR), J. A. Scott (JAS), O. Shields (OS), R. E. Stanford (RES), K. B.

Tidwell (KBT), University of Nevada, Las Vegas (UNLV), and R. E. Wells (REW). Additional Nevada records were supplied by C. Henne and B. McGuire.

A number of specimens, some important, in the Nevada State Museum from the Arrow Canyon Range (apparently west slope off U. S. 93) bear no collection date. The museum card catalog lists the date 13 May 1969 for some of these. We believe the correct date for all these undated specimens to be 14 April 1969 based on (1) 2 *Heliopetes ericetorum* labeled Arrow Canyon Range, 14 April 1969, (2) the date of 14 April 1969 was reported for certain of these specimens in the 1969 summary, (3) other collections were made in Clark Co. on 12 April 1969 (Searchlight, McCullough Mts., Blue Diamond) and (4) no specimens from Clark Co. (except 2 *Euphilotes battoides baueri* which may be mislabeled) with the date 13 May 1969 could be found in the museum. The only other reference to the 13 May date is of a collection of "*P. mojave*" (=*E. battoides baueri*) in the Delamar Mts., Lincoln Co. (1969 summ.).

Description of Clark County

Clark County is located in southernmost Nevada in the northern portion of the Mojave Desert. Several distinct biotic communities occur in the county due to great topographic diversity with elevations ranging from about 500′ along the Colorado River to nearly 12,000′ on Charleston Peak in the Spring (Charleston) Mountains. The biotic communities of southern Nevada were described in some detail by Bradley and Deacon (1965). Important works dealing with plant distribution in the county include Clokey (1951) and Beatley (1976). Brief descriptions of the major vegetative associations follow.

Most of Clark County (78%, Bradley 1967) is dominated by xerophytic vegetation. The largest association is the creosote bush community which occurs at elevations below 4200′ and is dominated by creosote bush (*Larrea tridentata*) and burrobush (*Ambrosia dumosa*). Numerous other shrub species are subdominant and many species of annual plants occur. At the higher elevations of this association there are often stands of *Yucca*. Density and diversity of plants tend to increase along desert washes. Along some major washes is a distinctive association of greater stature dominated by mesquites (*Prosopis* spp.) and catclaw (*Acacia greggii*). At elevations between 4200′ and 6000′, the desert vegetation is characterized by blackbush (*Coleogyne ramosissima*) with Joshua Tree (*Yucca brevifolia*) as a subdominant in some areas.

Elevations between 6000′ and 7300′ are dominated by a woodland characterized by Pinon (*Pinus monophylla*) and juniper (*Juniperus osteosperma*) often with an understory of sagebrush (*Artemisia* spp.). A distinct association including such species as silk-tassel (*Garrya flavescens*), manzanita (*Arctostaphylos pungens*) and oak (*Quercus gambelli*) develops

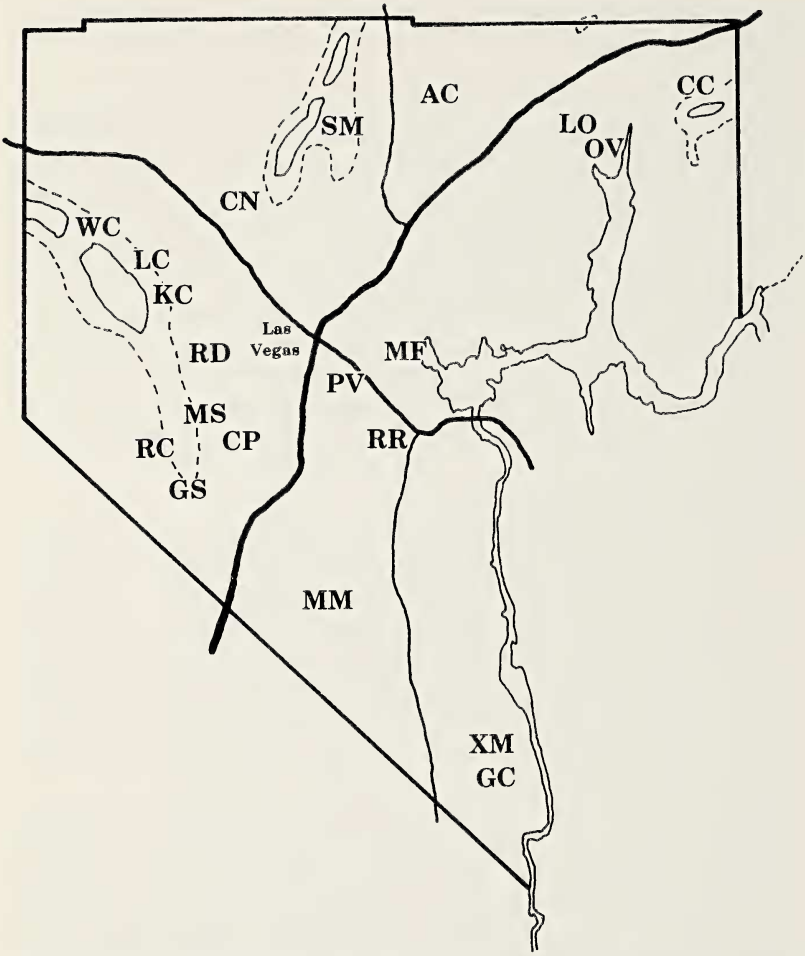

Fig. 1. Map of Clark County, Nevada, indicating major collecting localities mentioned in the text. Contour lines indicates 6000′ (dotted line) and 7500′ (solid line) elevations.

AC - Arrow Canyon Range
CC - Cabin Canyon
CN - Corn Creek
CP - Cottonwood Pass
GC - Grapevine Canyon
GS - Goodsprings area
KC - Kyle Canyon
LC - Lee Canyon
LO - Logandale
MF - Mormon Farm
MM - McCullough Mountains
MS- Mt. Springs Summit
OV - Overton area
PV - Paradise Valley
RC - Red Cloud Mine
RD - Red Rock area
RR - Railroad Pass
SM - Sheep Mountains
WC - Willow-Cold Creek area
XM - Christmas Tree Pass

in disturbed areas. At elevations above 7300′, there is a forest community composed of Ponderosa Pine (*Pinus ponderosa*) and White Fir (*Abies concolor*) at lower elevations and Limber and Bristlecone pines (*Pinus flexilis* and *P. aristata*) becoming commoner at higher elevations. Understory shrubs include current (*Ribes* spp.), snowberry (*Symphoricarpos longiflorus*) and Mountain Mahogany (*Cercocarpus ledifolius*).

Other associations include relatively small areas but are important as butterfly habitat. Cultivated and urban areas are found at low elevations, principally in Las Vegas, Virgin and Moapa valleys. Marsh vegetation develops in the presence of permanent water in such areas as Las Vegas Wash, Tule Springs, Corn Creek and in Moapa Valley.

Distinctive riparian associations develop in the vicinity of permanent water at high elevations, notably at Little Falls in Kyle Canyon and at Willow and Cold creeks in the northern portions of the Spring Range. Meadows also occur in some cleared or naturally open areas at high elevations including the old ski area in Kyle Canyon, along the ridge to Charleston Peak and in the vicinity of the ski area in Lee Canyon.

In certain areas, especially on the east slope of the Spring Range in the Red Rocks area, vegetation zonation is depressed in elevation in some deep, cool canyons with permanent water. This results in a unique mixture of vegetation not found in other portions of the county.

Annotated List of Species

In the following listing where no initials are given it will be assumed that the records were made by G. T., A. T. and E. J. Austin. Otherwise, the record citation will be indicated by the abbreviated collector or collection name. Males and females in the numerical listing are cited as "m" and "f" respectively. The locality citations are abbreviated according to the legend given with Figure 1.

Family Megathymidae

Agathymus alliae (Stallings & Turner) ssp.

Locally common only in the vicinity of *Agave* at middle elevations. The single brood flies from late September to early November. Clark County material belongs to the unnamed eastern Mojave Desert population as illustrated in Emmel and Emmel (1973).

SPECIMENS EXAMINED: (41) 1 mi. W. MS, 28 Sept. 78 (9 m), 30 Sept. 79 (4 m), 10 Oct. 78 (10 m, 1 f), 11 Oct. 77 (1 m, 3 f), 22 Oct. 77 (5 m, 3 f), 2 Nov. 77 (4 f); CC, 11 Oct. 78 (1 m).

ADDITIONAL RECORDS: 1 mi. W. MS, 1 Oct. 77 (s).

LARVAL FOODPLANTS: *Agave utahensis* Engelm. var. *nevadensis* Engelm. *ex* Greenm. & Roush. (Agavaceae): 1 mi. W. MS (larval tubes).

ADULT RESOURCES: m at water.

Megathymus yuccae navajo Skinner.

Uncommon in the higher desert to about 6000′ in stands of *Yucca*. The flight period is from early March to late May. Clark County material is assigned to the broad concept of *navajo*. In a more strict sense, these insects appear closest to *M. y. maudae*. Stallings, Turner & Stallings.

SPECIMENS EXAMINED: (15) Newberry Mts., 15 Mar. 69 (1 f, NSM); CC, 13 April 78 (1 f, CSL), 27 April 78 (1 m; 1 m, CSL); CP Rd., 0.6-1.8 mi. S. Pahrump Rd., 16 April 79 (2 m, 1 f), 29 April 79 (1 f), 2 May 78 (1 m), 6 May 78 (1 f, CSL), 28 May 78 (1 m); KC 17.1 mi. W. U.S. 95, 26 Apr. 77 (1 m); 1 mi. W. RD Summit, 28 April 77 (1 m, NSM); 2 mi. N. RC, 4 May 78 (1 m); KC Ski Run, 13 May 78 (1 m).

ADDITIONAL RECORDS: Dead Mts., 7 Mar. 67 (PJH); Willow Spring, 29 Mar. 78 (s); Wilson Pass, 29 Mar. 78 (s); CP to Pahrump Rd., 29 Mar. 78, 20 Apr. 77, 29 Apr. 78, 11 May 78 (s); 2 mi N. RC, 5 Apr. 78 (s); 2 mi. N. Sandy, 5 Apr. 78 (s); Potosi Mine Rd., 8 Apr. 71 (REW); CC, 8 Apr. 77 (RB), 10 May 78 (s); XM, 12 Apr. 78, 20 Apr. 78, 3 May 78 (s); GC, 12 Apr. 78 (s); KC, 9-17 mi. W. U.S. 95, 17 Apr. 66, 18 Apr. 77, 1 May 77, 13 May 78 (s), 28 May 73 (JFL); U.S. 93, 8 mi. N. I-15, 20 Apr. 75 (s); GS area, 20 Apr. 75 (JB); RD Summit Rd., 1.5-1.8 mi. E. Lovell Wash, 24 Apr. 77, 28 Apr. 77 (s); WC, 27 Apr. 77 (s); 1 mi. W. WC, 8 May 78 (s).

LARVAL FOODPLANTS: *Yucca baccata* Torr. (Agavaceae): Spring Mts., 30 Sept. 68 (larvae, 1968 summ.); RD, 25-27 Mar. 78 (pupae, REW); 1 mi. W. WC, 8 May 78 (ovip.). *Yucca schidigera* Roezl *ex* Ortgies (Agavaceae): RD, 25-27 Mar. 75 (pupae, REW); Charleston Blvd. nr. RD, 25 Nov. 78 (3 larvae in feeding tents, DM).

Family Hesperiidae

Lerodea eufala (Edwards).

Common to abundant in agricultural areas of Las Vegas, Moapa and Virgin valleys with occasional records in the vicinity of desert springs and rarely in open desert (Railroad Pass). The flight period extends from early May through mid November; it becomes increasingly common in successive broods suggesting poor overwinter survival. Four broods were produced at about 45 day intervals in the Logandale area but only 2 or 3 broods in other areas during 1977.

SPECIMENS EXAMINED: (333) Numerous records for Moapa Valley with earliest on 7 May (78, 1 m, CSL) and latest on 11 Nov. (77, 3 m, 5 f). Records away from Moapa Valley area: Las Vegas, 19 June 78 (1 m, CSL); MF, Las Vegas, 14 Aug. 77 (1 m), 13 Sept. 77 (1 m, 1 f), 25 Sept. 77 (1m, 3 f), 30 Sept. 77 (1 m, 1 f), 2 Oct. 77 (13 m, 8 f), 13 Oct. 77 (1 m), 16 Oct. 77 (1m), 21 Oct. 77 (2 m), 1 Nov. 77 (1 m); Mesquite, 18 Sept. 72 (3 m, 4 f, NSM); 0.6 mi. W. Blue Diamond, 26 Sept. 77 (1 m); RR, 3 Oct. 77 (1 m); Virgin Mts., 7 Oct. 73 (1 m, 3 f, NSM); CN, 7 Oct. 77 (1f). The only high elevation record is for WC, 23 Sept. 77 (1 f).

ADULT RESOURCES: *Sphaeralcea ambigua* (Malvaceae); *Polygonum lapathifolium* (Polygonaceae); *Convolvulus* sp. (Convolvulaceae); *Medicago sativa* (Fabaceae); *Helianthus annuus*, *Bebbia juncea*, *Pluchea sericea* (Asteraceae).

Atrytonopsis python (Edwards).

A single record from Pine Creek is the only one for Nevada.

SPECIMENS EXAMINED: None.

ADDITIONAL RECORDS: Pine Creek, 30 June 63 (KR).

Ochlodes yuma (Edwards).

Locally common in or near stands of *Phragmites communis* flying in 2 broods with peaks in late June (early June-early August) and in late September (late August early November). It rarely strays far from these situations although it is found commonly in alfalfa fields adjacent to *Phragmites* stands in Moapa Valley.

SPECIMENS EXAMINED: (190) Hidden Valley, 7 June 77 (1 m), 15 June 77 (5 m), 27 June 77 (5 m, 2 f), 4 July 77 (2 m), 12 July 77 (1 m), 25 Sept. 66 (1 m); PV, 9 June 79 (1 m, 1 f); Whitney Mesa, 9 June 79 (1 m), 6 Sept. 77 (3 m), 30 Sept. 77 (4 m, 2 f), 12 Oct. 77 (1 m), 21 Oct. 77 (1 m); CN, 12 June 66 (4 m, 2 f), 22 June 68 (5 m, 8 f), 18 July 65 (6 m, 7 f), 8 Aug. 77 (1 m, 3 f), 1 Sept. 63 (2 m, LACM), 3 Sept. 75 (14 m, NSM), 10 Sept. 75 (13 m, NSM), 15 Sept. 64 (4 m, 2 f, NSM), 25 Sept. 65 (4 m, NSM), 7 Oct. 77 (8 m, 4 f), 14 Oct. 77 (3 m, 3 f), 4 Nov. 77 (1 m, 1 f), 12 Nov. 77 (1 f); LO, 15 June 77 (12 m, 4 f), 27 June 77 (10 m, 1 f), 4 July 77 (5 m, 1 f), 12 July 77 (1 f), 30 July 77 (1 m), 23 Aug. 77 (2 m), 9 Oct. 77 (1 m, 4 f), 23 Oct. 77 (2 f); Bowman's Reservoir, 27 June 77 (1 m); Tule Springs, 4 July 62 (3 m); Clark County, 9 Sept. 76 (1 f, UNLV), 15 Sept. 73 (1 f, UNLV); Arden, 15 Sept. 64 (1 f, NSM), 25 Sept. 65 (1 m, NSM); Roger's Spring, 15 Sept. 64 (2 m, NSM); OV, 15 Sept. 64 (1 f, NSM); 25 Sept. 65 (1 f, NSM), 27 Sept. 65 (2 m, NSM); Valley of Fire, 27 Sept. 65 (1 m, NSM); Warm Springs, 27 Sept. 65 (1 m, NSM); Las Vegas, 2 Oct. 75 (1 m, UNLV), 10 Oct. 70 (1 m, UNLV), 15 Oct. 75 (1 f, UNLV).

ADDITIONAL RECORDS: LO, 7 June 77 (s), 10 July 72 (1972 summ.); Roger's Spring, 22 June 65, 25 Sept. 65 (PJH); CN, 22 June 68, 29 June 72 (JFL), 29 June 63 (KR), 31 July 65 (RES), 1 Aug. 65 (RES, JL), 1 Sept. 63 (KR); Tule Springs, 29 June 63 (KR); Cold Creek, 29 June 63 (KR); Hidden Valley, 4 Sept. 77 (s).

LARVAL FOODPLANTS: *Phragmites communis* Trin. (Gramineae): adult assoc. nearly everywhere found.

ADULT RESOURCES: *Heliotropium curassavicum* (Boraginaceae); *Prosopis pubescens, Medicago sativa* (Fabaceae); *Solidago spectabilis, Pluchea sericea, Cirsium* sp. (Asteraceae).

Atalopedes campestris (Boisduval).

Uncommon in agricultural areas of Moapa Valley (one record for Las Vegas Valley) flying in 2 broods during July and October. There are no other Nevada records.

Nevada material is consistently smaller than east coast and Texas specimens and tends to be more heavily patterned on the hindwing beneath and the females have considerably more orange above. They appear identical with a small series we have from the Sacramento Valley, California and may warrant subspecific recognition.

SPECIMENS EXAMINED: (22) LO, 4 July 77 (1 m), 10 July 68 (3 m), 9 Oct. 77 (4 m, 2 f), 16 Oct. 77 (3 m, 3 f), 23 Oct. 77 (2 m); MF, 2 Oct. 77 (1 m); OV, 23 Oct. 77 (3 m).

ADDITIONAL RECORDS: None.

ADULT RESOURCES: *Medicago sativa* (Fabaceae).

Polites sabuleti (Boisduval) ssp.

Locally common, especially in fall, in agricultural areas and occasionally in low alkali areas. One record for higher elevations at Mt. Springs Summit. Flies apparently in three broods in April, June-July and early August to early November.

We refrain from placing southern Nevada material in any named race. Our material is highly variable ranging from pale specimens with the hindwing markings beneath nearly lost in the pale ground color which resemble *P. s. chusca* (Edwards) to dark individuals from the same location and date with the markings on the lower hindwing well developed and thus approaching nominate *sabuleti*.

SPECIMENS EXAMINED: (96) PV, 14 April 77 (1 m, NSM); 10 mi. W. Glendale Jct., 17 April 70 (1 f, NSM); MF, 30 April 77 (1 m), 25 June 77 (1 m, 1 f), 14 Aug. 77 (2 f), 3 Sept. 77 (8 m, 3 f), 13 Sept. 77 (6 m), 25 Sept. 77 (4 m, 2 f), 2 Oct. 77 (18 m, 11 f), 16 Oct. 77 (1 f), (1 f); LO, 17 May 78 (1 m), 10 July 68 (1 m), 4 Sept. 66 (1 m), 28 Sept. 67 (1 m, 1 f, NSM), 9 Oct. 77 (1 m, 3 f), 16 Oct. 77 (1 m, 3 f); OV, 4 Sept. 66 (1 f), 26 Sept. 65 (3 m); Bowman's Reservoir, 7 May 78 (1 f, CSL), 27 Sept. 78 (1 m), 29 Sept. 66 (1 f, NSM), 29 Sept. 77 (2 m), 27 Oct. 65 (3 m, NSM); CN, 15 Sept. 64 (8 m, 1 f, NSM); OV, 27 Sept. 78 (1 m); Willow Springs, 24 Oct. 65 (1 m).

ADDITIONAL RECORDS: CN, 22 June 68 (KR), 10 Sept. 75 (CSL), 7 Oct. 77 (s); MS, 30 June 63 (KR); Clark County, 8 Aug. 74 (JAS); LO, 23 Aug. 77, 17 Sept. 77, 23 Oct. 77 (s); MF, 24 Aug. 77, 30 Sept. 77, 21 Oct. 77 (s); GC, 14 Sept. 77 (s); Whitney Mesa, 30 Sept. 77 (s); OV, 23 Oct. 77, 5 Nov. 77 (s).

ADULT RESOURCES: *Polygonum lapathifolium* (Polygonaceae); *Convolvulus* sp. (Convolvulaceae); *Heliotropium curassavicum* (Boraginaceae); *Medicago sativa* (Fabaceae); *Baccharis* sp. (Asteraceae).

Polites draco (Edwards).

A male from Kyle Canyon is the only record for the state.

SPECIMENS EXAMINED: None.

ADDITIONAL RECORDS: KC, 16 June 77 (J. W. Tilden, det. CDM, RES.).

Hesperia comma harpalus (Edwards).

Not uncommon in the Spring Range from 6000′ to 9000′. It flies in apparently two broods from mid May to early August and late August to late October. Spring Range material is large and quite orange above and thus differing from Great Basin populations and possibly showing some influence of *H. c. susanae* Miller. Its double broodedness appears unique among *harpalus*.

SPECIMENS EXAMINED: (140) Numerous records especially in KC and the WC area with records between 12 May (1934, Charleston Mts., 1, LACM) and 24 Oct. (1977, KC Ski Run, 1).

ADDITIONAL RECORDS: LC, 29 May 50 (MacNeill 1964), Charleston Peak trail, 10,800-11,918′, 24 June 68 (JFE, OS); KC, 6768′, 30 June 50 (18 m, 12 f, FWP); Deer Creek Rd., 7000′, 1 July 50 (4 m, 8 f, FWP); KC Campground, 2 July 78 (s); KC Ski Run, 2 July 78, 25 July 78, 8 Oct. 77 (s); Charleston Park, 8-15 July 28 (MacNeill 1964); LC Ski area, KC, Deer Creek area, 8 Aug. 74 (JAS).

ADULT RESOURCES: *Apocynum androsaemifolium* (Apocynaceae); *Sarcostemma cynachoides* (Asclepiadaceae); *Penstamon palmeri* (Scrophulariaceae); *Chaenactis douglasii*, *Chrysothamnus* sp., *Cirsium* sp., *Taraxacum officinale* (Asteraceae).

Hesperia nevada (Scudder).

A single specimen of the western Great Basin population of this species is known from Clark County.

SPECIMENS EXAMINED: None.

ADDITIONAL RECORDS: Charleston Mts., 13 May 31 (MacNeill 1964).

Hesperia pahaska martini MacNeill.

The only records are from the Sheep Range. Its reported foodplant, *Tridens pulchellus*, is widespread in the county and the presence of other colonies is probable.

SPECIMENS EXAMINED: (3) Sawmill Canyon, E. side of SM, 6000-6500′, 1 July 69 (1 f, LACM), 2 July 69 (1 m, 1 f, LACM).

ADDITIONAL RECORDS: None.

Hesperia juba (Scudder).

Rare above 6000′ in the Spring Range and in the Virgin Mts. with records indicating two broods from late May to mid July and late September to late October.

SPECIMENS EXAMINED: (7) WC, 6 June 78 (1 f), 22 June 78 (1 f); CC, 7 June 78 (1 f, CSL); KC Ski Run, 15 July 79 (1 f, CSL); KC, 9 Oct. 66 (1 m, 1 f); Echo Canyon, 23 Oct. 66 (1 f).

ADDITIONAL RECORDS: Charleston Park, 29 May 50 (MacNeill 1964); LC, 29 May 50 (MacNeill 1964); Cold Creek, 29 June 63 (KR); Cathedral Rock, 12 July 72 (DEA); KC, 26 Sept. 65 (PJH).

Hylephila phyleus (Drury).

Common to abundant in urban and agricultural areas, less common in the vicinity of desert springs. It is rare away from these situations with occasional records for desert washes in fall and two records for high elevations. The flight period is from late March to mid December.

SPECIMENS EXAMINED: (364) Many locations in Las Vegas and Moapa valleys with a small population in GC. Dates extend from 31 Mar. (78, PV, s) to 15 Dec. (79, Las Vegas, CSL). A sexual mosaic was taken at Hidden Valley on 23 Oct. 77.

LARVAL FOODPLANTS: *Cynodon dactylon* (L.) Pers. (Gramineae): Las Vegas, 7 June 77 (ovip.).

ADULT RESOURCES: *Tamarix pentandra* (Tamaricaceae); *Sarcostemma hirtellum* (Asclepiadaceae); *Heliotropium curassavicum* (Boraginaceae); *Prosopis glandulosa, Medicago sativa* (Fabaceae); *Viguiera deltoidea, Bebbia juncea, Baileya multiradiata, Perityle emoryi, Senecio douglasii, Baccharis* sp., *Cirsium* sp., *Stephanomeria* sp. (Asteraceae).

Copaeodes aurantiaca (Hewitson).

Fairly common in urban and agricultural areas, less common and somewhat local in desert washes and around springs and rare at high elevations (Willow Creek, Kyle Canyon Campground). The flight period extends from early March through early December in 3 or more broods.

SPECIMENS EXAMINED: (109) Many records for Las Vegas and Moapa valleys with extreme dates from 3 Mar. (75, Las Vegas, NSM) to 1 Dec. (77, Tule Springs, s). High elevation records are for WC, 22 June 68 (JFL) and KC Campground, 25 July 77 (1 f).

ADULT RESOURCES: *Sphaeralcea ambigua* (Malvaceae); *Eriodictyon angustifolium* (Hydrophyllaceae); *Heliotropium curassavicum* (Boraginaceae); *Medicago sativa* (Fabaceae); *Helianthus annuus, Bebbia juncea, Baileya multiradiata, Solidago spectabilis, Tetradymia axillaris, Stephanomeria* sp. (Asteraceae).

Pholisora libya libya (Scudder).

Uncommon and very local in (some) stands of *Atriplex canescens* in Las Vegas and Moapa valleys. It flies in two broods from mid April to late June and early September to mid October. The only record away from the valley floors is for Kyle Canyon at 6800′ at an unusual date of 27 July.

Specimens from Moapa Valley are typical of the nominate subspecies; certain specimens from the Las Vegas Valley (Corn Creek) have reduced maculation on the ventral hindwing thus showing intermediacy towards *P. libya lena* (Edwards) of the Great Basin.

SPECIMENS EXAMINED: (57) Hidden Valley, 4 May 77 (1 m); 1 mi. E. OV, 4 May 77 (4 m); Bowman's Reservoir, 4 May 77 (1 m, 4 f), 7 May 78 (1 f, CSL), 17 May 78 (1 m, 1 f, NSM; 1 m, 1 f, CSL; 5 m, 2 f), 7 June 77 (1 f), 15 June 77 (2 m, 1 f), 17 Sept. 77 (1 f), 27 Sept. 78 (2 m); LO, 7 June 77 (1 f), 16 June 77 (2 m, 1 f, CSL; 2 m, 1 f), 16 Oct. 77 (1 f); Las Vegas, 18 June 68 (1 f, UNLV); CN, 22 June 68 (1m, 2 f), 3 Sept. 75 (2 m, 2 f, NSM), 15 Sept. 64 (4 m, 2 f, NSM), 15 Sept. 66 (1 m, NSM), 7 Oct. 77 (1 m); MF, 25 June 77 (1 m); KC at Deer Creek Rd., 27 July 61 (1 m); Clark Co., 17 Sept. 73 (1 m, UNLV); Tule Springs, 25 Sept. 62 (1 m).

ADDITIONAL RECORDS: Bowman's Reservoir, 13 Apr. 78, 29 Sept. 77 (s); PV, 24 Apr. 78, 10 May 77 (s); CN, 22 June 68, 29 June 72 (JFL), 29 June 63, 1 Sept. 63 (KR), 25 Sept. 64 (PJH); Las Vegas, 10 Sept. 75 (s), 6 Oct. 62 (JFL); OV, 17 Sept. 77 (s).

ADULT RESOURCES: *Heliotropium curassavicum* (Boraginaceae); *Prosopis glandulosa, Medicago sativa* (Fabaceae); *Baileya pleniradiata, Baccharis* sp., *Pluchea sericea* (Asteraceae).

Pholisora gracielae MacNeill.

Locally common to abundant in Moapa Valley but only in close association with *Atriplex lentiformis*. We have not found this species in stands of this plant in the Las Vegas Valley or in the Colorado River Valley south of Davis Dam. Its flight period began sometime before 17 April and continued in 3 nearly non-overlapping broods through 29 September during 1977. Approximately equal peaks in numbers were at 2 month intervals on 4 May, 4 July and 4 September with numbers sharply lower 1-2 weeks on either side of the peaks. California populations were reported to have but 2 broods (MacNeill 1970, Emmel and Emmel 1973). The first brood has well developed subapical spots on the forewing; the second and third broods have these spots much reduced or wanting.

SPECIMENS EXAMINED: (122) Hidden Valley, 13 Apr. 78 (1 m, CSL), 17 Apr. 77 (17 m, 3 f), 4 May 77 (15 m, 7 f), 7 May 78 (1 f, CSL; 1 m, 1 f, NSM), 15 May 77 (5 m), 7 June 77 (1 m), 15 June 77 (3 m, 2 f), 27 June 77 (6 m), 4 July 77 (20 m, 7 f), 9 Aug. 77 (1 f), 4 Sept. 77 (7 m, 1 f), 17 Sept. 77 (1 m); Bowman's Reservoir, 4 May 77 (2 m, 1 f), 4 July 77 (2 m), 29 Sept. 77 (1 m); LO, 15 June 77 (1 f), 16 June 77 (2 f, CSL), 17 June 77 (1 f, NSM), 27 June 77 (1 f), 10 July 68 (1 m, 1 f), 12 July 77 (2 m, 1 f), 23 Aug. 77 (3 m, 1 f), 4 Sept. 66 (2 f).

ADDITIONAL RECORDS: Bowman's Reservoir, 27 June 77, 12 July 77, 23 Aug. 77, 4 Sept. 77 (s); LO, 4 July 77 (s); Hidden Valley, 12 July 77, 30 July 77, 23 Aug. 77 (s).

LARVAL FOODPLANTS: *Atriplex lentiformis* (Torr.) Wats. (Chenopodaceae); Moapa Valley (adult assoc.).

ADULT RESOURCES: *Tamarix pentandra* (Tamaricaceae); *Heliotropium curassavicum* (Boraginaceae); *Medicago sativa* (Fabaceae).

Pholisora alpheus oricus Edwards.

Locally common, especially along desert washes, above the valley floors. The single brood flies from mid March to late May. It is invariably found in association with *Atriplex canescens*.

SPECIMENS EXAMINED: (57) Ash Springs, 19 Mar. 72 (1 m); KC, 6-17 mi. W. U.S. 95, 4 Apr. 77 (1 m), 10 Apr. 78 (2 m), 11 Apr. 78 (1 m), 17 Apr. 66 (1 m), 18 Apr. 77 (2 m, 1 f), 18 Apr. 78 (2 m), 19 Apr. 78 (5 m, 1 f), 26 Apr. 77 (1 m) 26 Apr. 78 (3 m, 1 f), 30 Apr. 78 (5 m), 1 May 67 (1 m, NSM), 1 May 77 (2 m, 2 f), 2 May 78 (1 m), 11 May 78 (1 m), 13 May 78 (1 m); 0.5 mi. W. Blue Diamond, 20 Apr. 77 (1 f); 0.5 mi. S. Red Springs, 21 Apr. 79 (3 m, 1 f), 29 Apr. 79 (2 m, 3 f); CP Rd., 0.6-1.8 mi. S. Pahrump Rd., 22 Apr. 78 (4 m), 11 May 78 (1 m, 1 f); LC, 23 Apr. 66 (1 m); WC, 27 Apr. 77 (2 m), 29 Apr. 77 (2 m, 1 f).

ADDITIONAL RECORDS: 9 mi. W. Davis Dam, 23 Mar. 78 (s); Davis Dam, 31 Mar. 62 (R. C. Bechtal, *fide* OS); KC, 5000′, 3-4 May 75 (1975 summ.); Cold Creek Ranger Station, 8 May 78 (s); KC, 17.1 mi. W. U.S. 95, 28 May 77 (s).

ADULT RESOURCES: *Baileya multiradiata, Accamptopappus shockleyi, Taraxacum officinale* (Asteraceae).

Heliopetes domicella domicella (Erichson).

The single record from the Newberry Mountains is the only one for the state. The closest known collection site is located near Parker Dam, San Bernadino Co., California (Emmel and Emmel 1973), about 70 mi. to the south.

SPECIMENS EXAMINED: (1) GC, 12 Oct. 77 (1 m).

ADDITIONAL RECORDS: None.

Heliopetes ericetorum (Boisduval).

Common, usually near water, at elevations to 8500′; less common along desert washes and other areas away from water. The species is at least double brooded at high elevations and probably multivoltine at some low elevation sites. It flies at low elevations from late March to early November with very few July and August records and at high elevations from early May to late October with very few records from early August to mid September.

SPECIMENS EXAMINED: (128) The species is found nearly throughout the county except in the lower desert away from washes or roadsides. Extreme flight dates are from 21 Mar. (78, Las Vegas, 1 f, CSL) to 4 Nov. (77, Las Vegas, 1 m, UNLV).

LARVAL FOODPLANTS: *Sphaeralcea ambigua* Gray (Malvaceae): Lovell Wash, 8.9 mi. W. Pahrump Rd., 22 June 77 (ovip.). *Sphaeralcea grossulariaefolia* (Hook. & Arn.) Rydb. var. *pedata* (Torr.) Kearney (Malvaceae): 1 mi. W. WC, 25 May 78 (ovip. lower leaf surface, 12:15 PST).

ADULT RESOURCES: *Sphaeralcea ambigua* (Malvaceae); *Stanleya elata, Erysimum asperum* (Brassicaceae); *Eriogonum fasciculatum, Eriogonum heermannii* (Polygonaceae); *Sarcostemma hirtellum* (Asclepiadaceae); *Eriodictyon angustifolium* (Hydrophyllaceae); *Verbena gooddingii* (Verbenaceae); *Monardella* sp. (Lamiaceae); *Acacia greggii, Melilotus albus, Medicago sativa* (Fabaceae); *Sambucus caerulea* (Caprifoliaceae); *Viguiera deltoidea, Bebbia juncea, Baileya multiradiata, Chaenactis* sp., *Senecio douglasii, Senecio multilobatus, Tetradymia axillaris, Cirsium* sp., *Pluchea sericea* (Asteraceae); males frequently visit water.

Pyrgus scriptura (Boisduval).

Uncommon but widespread mainly along desert washes but also as high as 11,000′. This is a greater elevational range than reported previously (Scott 1975, MacNeill *in* Howe 1975). The flight period extends from late March to mid November. Most records are for April to June and September (no August records) indicating at least 2 broods. Spring and fall records are largely at lower elevations; June records are mainly at high elevations.

SPECIMENS EXAMINED: (46) 6 mi. N. Apex, 28 Mar. 71 (2 m, 3 f, NSM); CP to Pahrump Rd., 29 Mar. 78 (1 m), 22 Apr. 78 (3 m), 3 May 78 (1 m, CSL), 6 May 78 (1 m, CSL), 11 May 78 (1 m), 28 May 78 (3 m); 2 mi. E. Searchlight, 12 Apr. 69 (1 m, NSM); 1 mi. N. Dry Lake on I-15, 19 Apr. 75 (1 m); WC, 23 Apr. 78 (2 m), 27 Apr. 77 (2 m), 29 Apr. 77 (1 f, NSM; 2 m, CSL), 6 June 78 (1 m); KC, 9-15 mi. W. U.S. 95, 1 May 77 (1 m), 6 June 78 (1 m), 23 June 77 (1 f), 28 Sept. 77 (1 m); Nipton Pass, 4 May 78 (1 m); WC, 6 June 78 (2 m, 1 f), 15 June 78 (1 m), 22 June 68 (1 f), 22 June 78 (1 m), 23 June 62 (1 m), 20 July 78 (1 m); LC, 8200′, 10 June 62 (1 m, 1 f); Lovell Wash, 4500′, 17 June 62 (1 m); KC, 6.6 mi. W., 0.9 mi. N. U.S. 95, 21 June 78 (1 m); Las Vegas, 22 June 66 (1 f); Hidden Valley, 12 July 77 (1 m); LO, 28 Sept. 67 (1 m, NSM); Clark Co., 28 Oct. 70 (1 f, UNLV).

ADDITIONAL RECORDS: LC, 0.5-3 mi. W. U.S. 95, 7 Apr. 71 (REW); Potosi Mt. Rd., 8 Apr. 71 (REW); U.S. 93, 5 mi. N. I-15, 17 Apr. 77 (s); U.S. 95, 5 mi. N. KC, 23 Apr. 78 (s); CP to Pahrump Rd., 2 May 78 (s); 1 mi. W. WC, 8 May 78 (s); Hidden Valley, 15 May 77 (s); WC, 6 June 78 (s); Trout Canyon, 14 June 77 (s); LC ballfield, 23 June 77 (s); Mt. Charleston, 11,000′, 24 June 68 (JFE, OS); MS, 30 June 63 (KR); Las Vegas, 9-10 Sept. 62 (JFL); Moapa Valley, 21 Oct. 67 (JL); 11 mi. W. Searchlight, 11 Nov. 75 (CDM).

ADULT RESOURCES: *Phacelia fremontii, Eriodictyon angustifolium* (Hydrophyllaceae); *Baileya multiradiata, Tetradymia canescens, Taraxacum officinale* (Asteraceae).

Pyrgus communis (Grote).

Common to abundant in many habitats throughout the county to the top of Charleston Peak. At low elevations, the flight period extends from early February to mid December and at high elevations from early May to mid November.

SPECIMENS EXAMINED: (431) Records from a large number of locations with extreme dates of 4 Feb. (77, Boulder City, s) to 17 Dec. (70, Calico Basin, 1 f, UNLV).

LARVAL FOODPLANTS: *Sphaeralcea ambigua* Gray (Malvaceae): CP, 1.5 mi. S. Pahrump Rd., 22 Apr. 78 (ovip., lower leaf surface of lower leaves, 12:30 PST).

ADULT RESOURCES: *Sphaeralcea ambigua* (Malvaceae); *Smilacina stellata* (Liliaceae); *Tamarix pentandra* (Tamariacaceae); *Descuriana pinnata* (Brassicaceae); *Eriogonum fasciculatum, Eriogonum wrightii, Eriogonum heermannii, Eriogonum* sp. (Polygonaceae); *Allionia incarnata* (Nyctagnaceae); *Apocynum androsaemifolium* (Apocynaceae); *Sarcostemma hirtellum* (Asclepiadaceae); *Langlosia setosissima* (Polemoniaceae); *Phacelia fremontii, Eriodictyon angustifolium* (Hydrophyllaceae); *Heliotropium curassavicum, Crypatantha* sp. (Boraginaceae); *Physalis crassifolia* (Solanaceae); *Monardella* sp. (Lamiaceae); *Medicago sativa, Trifolium repens* (Fabaceae); *Viguiera multifolora, Helianthus annuus, Bebbia juncea, Baileya multiradiata, Baileya pleniradiata, Chaenactis fremontii, Pectis papposa, Acamptopappus shockleyi, Chrysothamnus* sp., *Erigeron* sp., *Senecio douglasii, Tetradymia canescens, Cirsium* sp., *Taraxacum officinale* (Asteraceae).

Erynnis brizo burgessi (Skinner).

Locally common in the vicinity of oaks from 4000′ to 7000′. The single brood flies from late March to mid June.

SPECIMENS EXAMINED: (94) Willow Springs, 23 Mar. 77 (2 m, NSM); Lost Creek, 23 Mar. 77 (1 m, NSM), 29 Mar. 78 (1 f, CSL), 20 Apr. 77 (2 m); CC, 29 Mar. 71 (2 m, 1 f, NSM), 8 Apr. 79 (6 m), 13 Apr. 78 (1 m, NSM; 2 m), 14 Apr. 77 (5 m, 3 f, NSM), 27 Apr. 78 (1 m, 1 f, NSM; 2 m), 10 May 78 (4 m, 1 f), 12 May 77 (1 m, CSL); Icebox Canyon, 21 Apr. 77 (1 f, NSM); White Rock Springs, 21 Apr. 79 (1 m); XM, 22 Apr. 79 (1 m); WC, 27 Apr. 77 (12 m, 2 f), 8 May 78 (4 m), 25 May 78 (3 m), 5 June

79 (3 m); WC, 27 Apr. 77 (1 m, NSM; 1 m, 2 f, CSL), 29 Apr. 77 (1 m, NSM), 8 May 78 (1 m), 25 May 78 (2 m), 30 May 66 (1 f), 13 June 77 (2 m, 1 f); Seep Canyon, 28 Apr. 73 (4 m, 1 f, NSM); 1 mi.W. RD Summit, 28 Apr. 77 (1 f, NSM); Pine Creek, 28 Apr. 75 (1 m, NSM); KC, 1 May 71 (1 m, 1 f); KC, 20 mi. W. U.S. 95, 2 May 77 (1 m, 1 f); Charleston Mts., 12-14 May 34 (6 m, 1 f, LACM); 0.5 mi. E. MS, 13 May 79 (1 m).

ADDITIONAL RECORDS: CC, 8 Apr. 77 (RB), 18 May 78 (s); Pine Creek, 2 May 77 (s); Oak Creek Canyon, 11 May 78 (s); KC Ski Run, 13 May 78 (s); LC, 29 May 50 (LACM); KC Campground, 31 May 77 (s); WC, 6 June 78 (s), 11 June 79, 13 June 77 (s).

LARVAL FOODPLANTS: *Quercus gambelii* Nutt. (Fagaceae): WC, 27 Apr. 77 (ovip. leaf buds). *Quercus turbinella* Greene (Fagaceae): CC, 10 May 78 (ovip. at base of leaf).

ADULT RESOURCES: *Erodium cicutarium* (Geraniaceae); *Eriodictyon angustifolium* (Hydrophyllaceae); *Ribes aureum* (Saxifragaceae); adults often visit water.

Erynnis funeralis (Scudder & Burgess).

Uncommon and local especially in desert canyons at elevations below 4400′. The flight period consists of a relatively large spring brood (mid March to early June), a small summer brood (late June to late July) and a small fall brood (late August to late October). The summer and fall broods may not occur in every year and possibly depend on summer rainfall.

SPECIMENS EXAMINED: (33) 9 mi. W. Davis Dam, 17 Mar. 77 (1, NSM; 1 f, CSL), 31 Mar. 77 (1 m, 2 f, NSM; 1 m, CSL), 8 Apr. 77 (1 m); Newberry Mts., 23 Mar. 67 (1 m, *ex* UNLV); GC, 8 Apr. 77 (1 m, NSM; 1 m), 20 Apr. 78 (1 f), 5 May 77 (1 m, CSL; 1 m), 3 July 78 (1 f), 21 July 78 (2 m), 13 Sept. 78 (1 f), 27 Sept. 77 (1 m), 12 Oct. 77 (1 m); XM, 12 Apr. 78 (1 m), 20 Apr. 78 (1 f), 5 May 77 (1m), 23 May 78 (1 f), 20 Sept. 78 (1 m); Nelson, 19 Apr. 64 (1 m, 1 f); CC, 18 May 78 (1 m, CSL), 26 June 78 (2 m); Las Vegas, 27 June 68 (1 m); WC, 20 July 78 (1 m); CN, 10 Sept. 78 (1 f, CSL); LO, 23 Oct. 77 (1 f).

ADDITIONAL RECORDS: RD, 19 Mar. 72 (s); XM, 25 Mar. 79, 15 Apr. 78, 21 July 78, 27 Sept. 77 (s); PV, 4 Apr. 77 (s); GC, 12 Apr. 78, 15 Apr. 78, 12 May 78, 1 June 78, 21 Aug. 78, 20 Sept. 78, 26 Sept. 78, 4 Oct. 77 (s); Sacatone Wash, 15 Apr. 78, 20 Sept. 78 (s); 9 mi. W. Davis Dam, 15 Apr. 78 (s); CP Rd., 0.6 mi. S. Pahrump Rd., 22 Apr. 78 (s); CC, 10 May 78, 17-18 May 78, 20 May 78, 7 June 78 (s); Oak Creek Canyon, 11 May 78 (s); Willow Springs, 19 Sept. 78 (s); Pine Creek, 22 Sept. 78 (s).

ADULT RESOURCES: *Eriodictyon angustifolium* (Hydrophyllaceae); *Amsinckia tessellata* (Boraginaceae); *Viguiera deltoidea, Bebbia juncea, Chrysothamnus* sp., *Senecio douglasii, Tetradymia axillaris, Tetradymia canescens* (Asteraceae).

Erynnis meridianus meridianus Bell.

Locally common in association with oaks above 3000′. It flies from mid March to early August with two September records. The number of broods apparently varies with location with possibly 3 at the lower elevations and usually one at higher elevations. We see no great differences in phenotype between early and late individuals although the earliest spring specimens tend to be smaller than later specimens.

SPECIMENS EXAMINED: (143) Numerous records from nearly throughout the Spring Range in the vicinity of oaks from 19 Mar. (72, Ash Spring, 1 m, 2 f) to 19 Sept. (78, Pine Creek, 2 m). Most specimens are from June. There are several records for the Virgin Mts. and one for GC on 13 Sept. 78 (1 m, CSL; 1 f).

ADULT RESOURCES: *Ranunculus cymbalaria* (Ranunculaceae); *Rorippa nasturtium-aquaticum, Erysimum asperum* (Brassicaceae); *Eriodictyon angustifolium* (Hydrophyllaceae); *Ribes cereum, Ribes aureum* (Saxifragaceae); *Cercis occidentalis, Melilotus albus* (Fabaceae); *Viguiera multiflora, Solidago spectabilis, Erigeron* sp., *Senecio douglasii, Senecio multilobatus, Cirsium* sp., *Taraxacum officinale* (Asteraceae).

Erynnis telemachus Burns.

This species is known at present only from the Virgin Mountains flying in a single brood in May and early June.

SPECIMENS EXAMINED: (29) CC, 10 May 78 (2 m; 2 m, CSL), 18 May 78 (1 m; 1 m, CSL), 20 May 78 (1 m), 20 May 79 (12 m, 1 f), 29 May 78 (4 m), 7 June 78 (1 m), 8 June 78 (1 m, CSL); Virgin Mts., 30 May 74 (3 m, NSM).

ADDITIONAL RECORDS: None.

Chiomara asychis georgina (Reakirt).

The only record is a stray at Corn Creek.

SPECIMENS EXAMINED: (1) CN, 26 Sept. 65 (1 m, NSM).

ADDITIONAL RECORDS: None.

Systasea zampa (Edwards).

A small population occurs in the southern portion of the county in the Newberry Mountains. There are no other Nevada records.

SPECIMENS EXAMINED: (8) GC, 15 Apr. 78 (1 m), 20 Apr. 78 (1 m, CSL), 21 July 78 (1 m); 9 mi. W. Davis Dam, 20 Apr. 78 (1 m), 26 Sept. 78 (1 m, NSM); XM, 23 May 78 (1 m), 21 July 78 (1 m); Sacatone Wash, 20 Sept. 78 (1, CSL).

ADDITIONAL RECORDS: 9 mi. W. Davis Dam, 3 May 78 (s).

ADULT RESOURCES: *Monardella* sp. (Lamiaceae); *Bebbia juncea* (Asteraceae).

Thorybes pylades (Scudder).

This skipper is known for Clark County from 2 records from the Spring Range.

SPECIMENS EXAMINED: None.

ADDITIONAL RECORDS: KC, 29 June 63 (KR); Pine Creek, 30 June 63 (KR).

Polygonus leo arizonensis (Skinner).

Three fall records are the only occurrences of this stray in Nevada.

SPECIMENS EXAMINED: (2) 10 mi. W. of Searchlight, 21 Sept. 72 (2 m, NSM).

ADDITIONAL RECORDS: GC, 13 Sept. 78 (s); LO, 9 Oct. 77 (s).

ADULT RESOURCES: *Bebbia juncea* (Asteraceae).

Epargyreus clarus huachuca (Dixon).

The only state specimens are from the Virgin Mountains where they associate with *Robinia neomexicana* from mid May to late June. Individuals of this population average smaller but are otherwise quite indistinguishable from southern Arizona *huachuca*.

SPECIMENS EXAMINED: (14) CC, 20 May 79 (1 m), 29 May 78 (1 m), 7 June 78 (1 m), 26 June 78 (6 m); Virgin Mts., 30 May 74 (5 m, NSM).

ADDITIONAL RECORDS: None.

ADULT RESOURCES: *Robinia neomexicana* (Fabaceae); males visit water.

Family Papilionidae

Battus philenor philenor (Linnaeus).

There are several records of this species from April to October mostly in the low valleys. Specimens are generally quite worn. It is most likely non-resident but occurring as a stray from Arizona.

SPECIMENS EXAMINED: (4) CN, 18 July 65 (1 m); Las Vegas, 7 Sept. 68 (1 f); Stewart Springs, 29 Sept. 66 (2 m, NSM).

ADDITIONAL RECORDS: PV, 24 Apr. 78 (s); GC, 5 May 77, 21 Aug. 78 (s); Las Vegas, 14 June 77, 26 June 77, 23 Aug. 66 (s); KC Ski Run, 25 July 77 (s); CN, 31 July 65 (RES); KC, 7600′, 5 Aug. 72 (JFL); Roger's Spring, 10 Oct. 64 (PJH).

ADULT RESOURCES: *Cirsium* sp. (Asteraceae).

Papilio bairdii bairdii Edwards.

Rare in the Spring Range; the 4 known specimens are probably from Kyle Canyon where its probable foodplant (*Artemesia dracunculus*) is common. All records are in mid June.

SPECIMENS EXAMINED: None.

ADDITIONAL RECORDS: (all *fide* JFE) Mt. Charleston, 11-12 June 35 (2 f, Rudkin colln.), 15 June 40 (1 m, Calif. Acad. Sci.), KC, no date (T. Davies colln.).

Papilio rudkini Comstock.

Locally common in the upper desert and occasional elsewhere in towns, cultivated areas and once to 9000′. There are two main broods in March and April and in September and October with scattered individuals at other times of the year (records from mid February to late November). The fall brood may be quite small or lacking, depending on summer rainfall. The dark form "clarki" comprises about 14% of the local population (approximate estimate, no statistical data available).

SPECIMENS EXAMINED: (311 including 45 "clarki") Records extend from 12 Feb. (77, KC, 1 mi. W. U.S. 95, 1 m) to 21 Nov. (77, Las Vegas, 1 m, UNLV). There are very few records (12 specimens) from June through August.

LARVAL FOODPLANTS: *Thamnosma montana* Torr. & Frem. (Rutaceae): CC, 27 Apr. 78 (mature larva, dark form, emerged as form "clarki", CSL); CP Rd., 1.5 mi. S. Pahrump Rd., 11 May 78 (ovip. upper leaf surface, 10:00 PST); CC, 20 May 79 (mature larva); RC, 27 May 78 (ovip. on stem at leaf base, 11:00 PST); CP Rd., 0.6-1.8 mi. S. Pahrump Rd., 28 May 78 (ovip. on stem at leaf base, 09:45 PST, 11:20 PST); Pahrump Rd., 3 mi. W. Blue Diamond turnoff, 26 Sept. 77 (ovip. on stem, 09:15 PST, 09:30 PST).

ADULT RESOURCES: *Delphinium parishii* (Ranunculaceae); *Dichlostemma pulchellum* (Amaryllidaceae); *Arabis* sp. (Brassicaceae); *Eriogonum plumatella* (Polygonaceae); *Asclepias subulata* (Asclepiadaceae); *Phacelia vallis-mortae, Eriodictyon angustifolium* (Hydrophyllaceae); *Heliotropium curassavicum, Amsinckia tessellata*, (Boraginaceae); *Penstamon palmeri* (Scrophulariaceae); *Verbena gooddingii* (Verbenaceae); *Salazaria mexicana, Salvia dorrii* (Lamiaceae); *Ribes cereum* (Saxifragaceae); *Rosa woodsii* (Rosaceae); *Acacia greggii, Medicago sativa, Melilotus albus, Lotus rigidus, Astragalus lentiginosus* (Fabaceae); *Thamnosma montana* (Rutaceae); *Encelia farinosa, Encelia virginensis, Bebbia juncea, Haplopappus* sp., *Chrysothamnus* sp., *Senecio douglasii, Cirsium* sp., *Stephanomeria* sp., *Taraxacum officinale* (Asteraceae).

Papilio indra martini Emmel & Emmel.

Locally common in the Spring Range where there are two broods from mid March to late April and late June to mid July. The Spring Range population varies from individuals with wide postmedian bands resembling *P. i. nevadensis* Emmel & Emmel to those with a near absence of the postmedian band in the hindwing as is typical of *martini* (see also Emmel & Emmel 1974). There are additional populations of *indra* known from the Newberry, Mormon and Virgin mountains which differ from these. The records (1963 summ.) of *P. indra* near *fordi* Comstock & Martin refer to the Spring Range population. Tyler's (1975) inclusion of *fordi* in Nevada is also in error.

SPECIMENS EXAMINED: (6) Ash Springs, 30 June 69 (2 m, 1 f, LACM), 6 July 62 (3 m).

ADDITIONAL RECORDS: Calico Basin, 19 Mar. 62 (JFL); Willow Spring, 19 Apr. 66 (JFL), 17 June 78 (DM); White Rock Springs, 19 Apr. 75 (JB); 21 Apr. 79 (s), 2.1 mi. E. Lovell Wash, RD Summit Rd., 24 Apr. 77 (s); Ash Springs, 25 June 68 (JFE, OS); north of Deer Creek Campground, 29 June 63 (KR); Lovell Canyon, 10 July 75 (CSL).

LARVAL FOODPLANTS: *Lomatium parryi* (Wats.) Macbr. (Apiaceae): Calico Basin, 28 Mar. 72 (larvae, JFL); Ash Spring, 25 June 68 (larvae, JFE, OS).

ADULT RESOURCES: *Lomatium parryi* (Apiaceae); *Cirsium* sp. (Asteraceae).

Papilio rutulus rutulus Lucas.

Fairly common is the Spring Range from 6000′ to 9000′ especially in Kyle Canyon. It flies from late May to early August in a single brood.

SPECIMENS EXAMINED: (58) KC, 20 mi. W. U.S. 95, 31 May 77 (1 m), 14 June 77 (1 m), 28 June 77 (1 m), 28 June 78 (1 f), 5 July 78 (1 m); above Cathedral Rock Campground, 17 June 77 (1 m, 1 f); KC Ski Run, 17 June 77 (1 m, NSM); 20 June 79 (1 m, 1 f), 22 June 78 (1 f), 26 June 79 (2 m, 2 f), 2 July 78 (2 m), 5 July 77 (1 f), 7 July 77 (2 m, CSL), 10 July 75 (2 m), 18 July 79 (1 m); KC Campground, 20 June 79 (1 m), 24 June 79 (2 m), 26 June 79 (2 m), 7 July 77 (1 m); KC, 7650′, 27 June 65 (1 f); Charleston Park, 30 June 77 (3 m, CSL; 2 m, 2 f, NSM); Little Falls, 5 July 65 (6 m, 3 f), 13 July 65 (2 m, 1 f), 20 July 65 (1 m); KC, 6050′, 5 July 65 (1 m); end KC, 13 July 65 (1 m); KC, 7500′, 15 July 74 (2 m, 2 f); Rainbow Canyon, 20 July 65 (1 f); KC, 9000′, 25 July 65 (1 f).

ADDITIONAL RECORDS: Numerous records for KC, earliest on 29 May 63 (JFL); latest on 1 Aug. 67 (s). One record for west slope in Lovell Wash at Spring Mountain Youth Camp on 22 June 77 (s).

LARVAL FOODPLANTS: *Populus tremuloides* Michx. (Salicaceae): KC Ski Run, 26 June 79 (ovip. lower surface of leaf near midrib, 10:00 PST); 5 July 77 (ovip.); 10 July 79 (ovip. upper leaf surface, 08:50 PST).

ADULT RESOURCES: *Ipomopsis aggregata* (Polemoniaceae); *Penstamon utahensis* (Scrophulariaceae); *Erysimum asperum* (Brassicaceae); *Cirsium* sp., *Taraxacum officinale* (Asteraceae); visit water on occasion.

Papilio multicaudatus Kirby.

The only known colony of this species in Clark County is in the Virgin Mountains. Specimens have wide dark borders similar to Arizona material.

SPECIMENS EXAMINED: (18) CC, 27 Apr. 78 (1 m, CSL), 17-18 May 78 (2 m, 1 f; 2 m, CSL; 2 m, NSM), 20 May 79 (3 m), 29 May 78 (2 m, 2 f), 7-8 June 78 (2 m; 1 f, CSL).

ADDITIONAL RECORDS: CC, 10 May 78, 20 May 78, 26 June 78 (s).

ADULT RESOURCES: Males occasionally visit water.

Family Pieridae

Neophasia menapia (Felder & Felder).

Rare but apparently not uncommon in some years in the Spring Range above 7400′. The few records indicate a single brood flying from late July to late August.

SPECIMENS EXAMINED: (1) KC Ski Run, 1 Aug. 77 (1 m).

ADDITIONAL RECORDS: KC, 7400′, 29 July 62 (JFL), 31 Aug. 62 (JFL); Charleston Mts., 6 Aug. 61 (RES); KC, 7800′, 8 Aug. 62 (JFL), 12 Aug. 63 (JFL), 18 Aug. 63 (JFL); KC, 8 Aug. 74 (JAS).

ADULT RESOURCES: *Argemone minita* (Papaveraceae).

Pieris beckerii beckerii Edwards.

Uncommon, but sometimes common, usually at elevations between 2900′ and 7200′. Its flight period is from late March to mid November. At least 4 broods appear to be involved in some years along some upper desert washes; single broods may be raised in other areas. Summer rainfall may be regulatory as suggested by Emmel and Emmel (1973).

SPECIMENS EXAMINED: (121) Numerous records for many locations at middle elevations in much of the county with dates between 3 Mar. (78, KC, 6.6 mi. W., 0.9 mi. N. U.S. 95, 1) and 13 Nov. (77, KC, 9.3 mi. W. U.S. 95, 1 m). The species is most common in the Spring Range and rare in the Newberry and Virgin mountains. A few records also exist for the Las Vegas and Moapa valleys.

LARVAL FOODPLANTS: *Stanleya pinnata* (Pursh) Britton (Brassicaceae): CP Rd., 1.8 mi. S. Pahrump Rd., 29 Apr. 78 (ovip. main stem, 1/2 way up at leaf base, 11:15 PST); 1 mi. W. WC, 8 May 78 (ovip. at apex of flower bud, 11:30 PST); Trout Canyon Rd., 0.8 mi. W. Spring Mt. Youth Camp, 14 June 77 (ovip. lower leaf surface); KC, 15 mi. W. U.S. 95, 23 June 77 (ovip.). *Stanleya elata* Jones (Brassicaceae): KC, 9.3 mi. W. U.S. 95, 1 May 77 (ovip. on main stem).

ADULT RESOURCES: *Clematis ligusticifolià* (Ranunculaceae); *Stanleya pinnata, Arabis* sp. (Brassicaceae); *Eriogonum fasciculatum, Eriogonum microthecum* (Polygonaceae); *Phacelia fremontii, Eriodictyon angustifolium* (Hydrophyllaceae); *Marrubium vulgare, Salvia dorrii* (Lamiaceae); *Astragalus lentiginosus* (Fabaceae); *Teradymia canescens* (Asteraceae).

Pieris sisymbrii elivata (Barnes & Benjamin).

Uncommon, especially at middle elevations between 4000′ and 6500′, in most of the county. The single brood flies from mid March to mid May with a single record in mid June. All southern Nevada females examined were at least slightly tinged with yellowish.

SPECIMENS EXAMINED: (100) Records extend from 18 Mar. (72, XM, JFL) to 17 May (78, CC, s). One record on 14 June 77 (KC, 17.1 mi. W. U.S. 95, s).

ADULT RESOURCES: *Arabis* sp. (Brassicaceae).

Pieris protodice protodice Boisduval & LeConte.

Common to abundant at low elevations and less common at the higher elevations to at least 10,000′. The flight period extends throughout the year. Fresh individuals are found on warm days in midwinter.

The small spring form "vernalis" flies at low elevations from January to April and apparent intermediates with the typical form occurring into May. Specimens from

October to December are large but more heavily marked below than the summer form.

SPECIMENS EXAMINED: (391) Specimens are from many localities throughout the county except the highest elevations.

LARVAL FOODPLANTS: *Lepidium lasiocarpum* Nutt. (Brassicaceae): CP Rd., 1.5 mi. S. Pahrump Rd., 29 Apr. 78 (ovip., upper leaf surface, 09:30 PST). *Descurainia pinnata* (Walt.) Britt. ssp. *glabra* (Woot. & Standl.) Detl. (Brassicaceae): U.S. 93, 13 mi. N. I-15, 14 May 78 (ovip., 09:15 PST). *Descurainia pinnata* (Walt) Britt. ssp. *halictorum* (Ckll.) Delt. (Brassicaceae): WC, 8 May 78 (ovip. 2x, lower leaf surface of upper leaves, 13:30 PST).

ADULT RESOURCES: *Sphaeralcea grossulariaefolia* (Malvaceae); *Linum lewisii* (Linaceae); *Tamarix pentandra* (Tamaricaceae); *Stanleya pinnata, Sisymbrium altissimum* (Brassicaceae); *Eriogonum corymbosum, Eriogonum fasciculatum* (Polygonaceae); *Menodora spinescens* (Oleaceae); *Phacelia fremontii, Eriodictyon angustifolium* (Hydrophyllaceae); *Heliotropium curassavicum* (Boraginaceae); *Marrubium vulgare, Salvia dorrii* (Lamiaceae); *Fallugia paradoxa* (Rosaceae); *Acacia greggii, Prosopis glandulosa, Prosopis pubescens, Medicago sativa, Melilotus albus, Melilotus officinalis, Astragalus lentiginosus* (Fabaceae); *Viguiera deltoidea, Viguiera multiflora, Helianthus annuus, Encelia virginensis, Bebbia juncea, Baileya multiradiata, Baileya pleniradiata, Chaenactis fremontii, Haplopappus* sp., *Chrysothamnus* sp., *Erigeron* sp., *Senecio douglasii, Senecio multilobatus, Pluchea sericea, Cirsium* sp., *Taraxacum officinale* (Asteraceae).

Pieris rapae (Linnaeus).

Common in urban areas, less common in agricultural areas and small, recently established (since 1968) wild colonies at higher elevations at Willow and Cold creeks and in Kyle Canyon. A wild, possibly fugitive, colony was found in the upper desert near Cottonwood Pass in 1978. There are additional records near desert springs and in the Virgin and Newberry mountains. The flight period is from late January to mid December at low elevations and from late April to mid October at high elevations. There is only one record before 1961 (Las Vegas, 12 Apr. 60, PJH).

SPECIMENS EXAMINED: (104) Many records especially in Las Vegas Valley throughout most of the year.

LARVAL FOODPLANTS: *Caulanthus cooperi* (S. Wats.) Pays (Brassicaceae); CP Rd., 1.8 mi. S. Pahrump Rd., 29 Apr. 78 (ovip., 2x, lower leaf surface, just to one side of mid rib, 12:00 PST). *Descurainia sophia* (L.) Webb (Brassicaceae): MS, 11 May 78 (ovip., 3x, lower leaf surface, 12:30 PST). *Rorippa nasturtium-aquaticum* (L.) Schinz & Thell (Brassicaceae): WC, 1 July 77 (ovip. lower leaf surface). *Brassica oleracea* L. var. *botrytis* L. (Brassicaceae): Las Vegas (many records of ovip. and larvae). *Brassica oleracea* L. var. *capitata* L. (Brassicaceae): Las Vegas (many records of ovip. and larvae).

ADULT RESOURCES: *Clematis ligusticifolia* (Ranunculaceae); *Sisymbrium altissimum, Rorippa nasturtium-aquaticum* (Brassicaceae); *Phacelia fremontii, Eriodictyon angustifolium* (Hydrophyllaceae); *Amsinckia tessellata* (Boraginaceae); *Medicago sativa, Melilotus albus, Astragalus* sp. (Fabaceae); *Chaenactis fremontii, Pluchea sericea, Taraxacum officinale* (Asteraceae).

Colias eurytheme Boisduval.

Abundant in agricultural areas and occasional in the desert and near springs at low elevations and fairly common in open areas at high elevations. Low elevation records extend from mid February to mid December and those at high elevations from late April to mid November. Desert records are for spring and fall.

Early spring (March, April) and late fall (October, November) specimens are smaller, paler and usually more heavily dusted with black and have more extensive pink markings beneath than summer specimens. This indicates that the form "ariadne" is a valid form in this area and is not a hybrid between this species and *C. philodice* Godart as sometimes suggested (Klots 1951, Brown, *et al.* 1957). *Colias philodice* is very rare in southern Nevada. The form "alba" comprises 31% of the local female population (approximate estimate, no statistical data available).

SPECIMENS EXAMINED: (615) A large number of records from numerous locations to 11,000' with records from 11 Feb. to 19 Dec. It probably can be found at sometime as either a resident or stray in all parts of the county.

LARVAL FOODPLANTS: *Medicago sativa* L. (Fabaceae); LO, 4 July 77 (ovip.). *Trifolium repens* L. (Fabaceae): WC, 8 May 78 (ovip., lower leaf surface, 12:20 PST).

ADULT RESOURCES: *Clematis ligusticifolia* (Ranunculaceae); *Linum lewisii* (Linaceae); *Tamarix pentandra* (Tamaricaceae); *Argemone minita* (Papaveraceae); *Stanleya pinnata, Sisymbrium altissimum, Erysimum asperum* (Brassicaceae); *Eriogonum wrightii, Polygonum lapathifolium* (Polygonaceae); *Arctostaphylos pungens* (Ericaceae); *Convolvulus* sp. (Convolvulaceae); *Apogynum androsaemifolium* (Apocynaceae); *Sarcostemma hirtellum* (Asclepiadaceae); *Eriodictyon angustifolium* (Hydrophyllaceae); *Heliotropium curassavicum* (Boraginaceae); *Lycium* sp. (Solanaceae); *Verbena gooddingii* (Verbenaceae); *Fallugia paradoxa, Rosa woodsii* (Rosaceae); *Lupinus* sp. *Medicago sativa, Melilotus albus, Melilotus officinalis, Robinia neomexicana* (Fabaceae); *Viguiera multiflora, Helianthus annuus, Bebbia juncea, Baileya multiradiata, Eriophyllum wallacei, Pectis papposa, Haplopappus* sp., *Chrysothamnus* sp., *Machaeranthera tortifolia, Baccharis* sp., *Senecio douglasii, Tetradymia canescens, Cirsium* sp., *Taraxacum officinale* (Asteraceae).

Colias philodice philodice Godart.

A stray from Las Vegas is the only specimen from the county.

SPECIMENS EXAMINED: (1) Las Vegas, 20 Oct. 1974 (1 f, *ex* UNLV).

ADDITIONAL RECORDS: None.

Colias alexandra edwardsii Edwards.

A small colony of this species was discovered in the southern portion of the Spring Range in 1978. The only other record for the county is a fall record from Kyle Canyon.

SPECIMENS EXAMINED: (5) CP Rd., 0.6-1.8 mi. S. Pahrump Rd., 22 Apr. 78 (1 m), 29 Apr. 78 (1 m), 6 May 78 (1 m, CSL), 11 May 78 (1 m, apparent hybrid x *C. eurytheme* or *C. philodice*); KC, 9.3 mi. W. U.S. 95, 15 Oct. 77 (1 f).

ADDITIONAL RECORDS: CP Rd., 0.6-1.5 mi. S. Pahrump Rd., 16 Apr. 79, 29 Apr. 79, 19 May 78 (s).

Colias cesonia (Stoll).

Usually rare at elevations to 7600' with records from mid February to mid November. In most years it may be a stray but it was common and produced at least two broods in the Newberry Mountains in 1978.

SPECIMENS EXAMINED: (47) GC, 15 Apr. 78 (1 f), 21 Apr. 78 (1 f, CSL), 3 May 78 (1 f), 23 May 78 (5 m, 1 f), 1 June 78 (8 m, NSM; 3 m, CSL); 3 July 78 (1 m, 2 f), 21 July 78 (2 m, 2 f), 4 Aug. 78 (2 m); CP Rd., 0.6-1.5 mi. S. Pahrump Rd., 16 Apr. 77 (1 f), 28 May 78 (1 m); Bowman's Reservoir, 7 May 78 (1 m, CSL); Bridge Canyon, 12 May 78 (1 f); XM, 1 June 78 (1 m, CSL), 21 July 78 (2 m); WC, 22 June 78 (2 m, CSL), 1 July 77 (1 m), 4 July 62 (1 m), 20 July 78 (2 m); WC, 4 July 62 (1 f), 20 July 78 (2 m); KC Ski Run, 23 July 78 (1 m), 25 July 78 (1 m, NSM).

ADDITIONAL RECORDS: GC, 20 Feb. 78, 20 Apr. 78, 12 May 78 (s); 1 mi. W. MS, 26 Mar. 68, 11 May 78 (s); Sacatone Wash, 15 Apr. 78 (s); PV, 19 Apr. 78, 28 Apr. 78 (s); 9 mi. W. Davis Dam, 20 Apr. 78 (s); CP Rd., 0.6-1.8 mi. S. Pahrump Rd., 22 Apr. 78, 11 May 78 (s); Hidden Valley, 27 Apr. 78 (s); Pine Creek, 2 May 77, 22 May 78 (s); Willow Springs, 2 May 78 (s); CC, 10 May 78, 29 May 78, 7 June 78 (s); LO, 17 May 78, 11 Nov. 77 (s); Bunkerville, 17 May 1978 (s); XM, 23 May 78, 3 July 78 (s); WC, 11 June 79 (s); Lovell Wash, 17 June 62, 18 July 62 (s); Charleston Park, 25 June 68 (JFE, OS); Ash Springs, 6 July 62 (s); Echo Canyon, 23 July 78 (s); KC Ski Run, 25 July 78 (s); Charleston Mts., 31 July 65 (JL, RES); WC, 30 Aug. 77 (s); Jean, 2 Sept. 78 (s); RR, 28 Oct. 77 (s).

ADULT RESOURCES: *Clematis ligusticifolia* (Ranunculaceae); *Amsonia tomentosa* (Apocynaceae); *Eriodictyon angustifolium* (Hydrophyllaceae); *Marrubium vulgare, Monardella* sp. (Lamiaceae); *Bebbia juncea, Tetradymia canescens, Cirsium* sp., (Asteraceae).

Phoebis sennae marcellina (Cramer).

Scattered records of strays are the only ones for the state. A relatively good flight was noted in the spring of 1978.

SPECIMENS EXAMINED: (5) Willow Spring, 10 May 66 (1, JFL); GC, 1 June 78 (1 m, CSL), 3 July 78 (1 f); OV, 10 July 68 (1, JFL); KC, 7400′, 18 Aug. 63 (1, JFL).

ADDITIONAL RECORDS: PV, 10 Apr. 78, 24 Apr. 78, 19 May 79 (s); XM, 12 Apr. 78 (s); GC, 12 Apr. 78 (s); Hidden Valley, 13 Apr. 78 (CSL, s); CC, 13 Apr. 78 (s); WC, 22 June 78 (s).

ADULT RESOURCES: *Tamarix pentandra* (Tamaricaceae); *Prosopis juliflora* (Fabaceae).

Eurema mexicana (Boisduval).

Four specimens and a few sightings represent the only state records. This species may occasionally establish itself as a breeding insect in southern Nevada but this has yet to be shown.

SPECIMENS EXAMINED: (4) Willow Springs, 10 May 66 (3, JFL); 21 May 66 (1, JFL).

ADDITIONAL RECORDS: 9 mi. W. Davis Dam, 23 Mar. 78, 20 Apr. 78 (s); I-15, 2 mi. N. Dry Lake, 19 Apr. 75 (s).

Eurema nicippe (Cramer).

Common in a variety of habitats to 7600′ but mostly below 4000′ in desert washes and the vicinity of springs. Records extend from late January to mid December involving possibly 4 broods in some areas. Open desert records indicate that there are 2 usual broods, one in early spring and one in fall.

Specimens from April through September are mostly yellow beneath; those from February and October to December represent the reddish winter form.

SPECIMENS EXAMINED: (126) Numerous records from the lower canyons from 29 Jan. (78, Las Vegas, s) to 11 Dec. (77, GC, 1 m, 3 f). Less common at higher elevations from 10 Apr. (68, MS, s) to 16 Nov. (77, KC, 20 mi. W. U.S. 95, s).

LARVAL FOODPLANTS: *Cassia armata* Wats. (Fabaceae): 9 mi. W. Davis Dam, 3 May 78 (ovip., lower surface of flower bud, 09:00 PST).

ADULT RESOURCES: *Sarcostemma hirtellum* (Asclepiadaceae); *Physalis crassifolia* (Solanaceae); *Monardella* sp. (Lamiaceae); *Medicago sativa, Melilotus albus* (Fabaceae); *Viguiera deltoidea, Helianthus annuus, Bebbia juncea, Senecio douglasii, Cirsium* sp. (Asteraceae).

Nathalis iole Boisduval.

Common and widespread in many habitats to 9000′. Its flight period extends from early February to mid December at low elevations and from late April to late October above 6000′. At least 4 broods appear to be involved in some areas but possibly only 2 in low desert.

Very early spring (February) specimens represent the winter form. The lower surface of both sexes of this form is very heavily overscaled with black nearly obscuring the underlying paler scales. The females are pale yellow with a reduction of the black markings on the inner margin of the forewing and on the hindwing. The yellow hindwing of the winter form contrasting with orangish hindwings of the summer form indicates, perhaps, that southern Nevada material belongs to the central segregate of this species (see Clench 1976). The validity of these color forms is yet to be demonstrated.

SPECIMENS EXAMINED: (107) Records are for much of the county with the earliest on 6 Feb. (77, 0.5 mi. S.W. Laughlin, 1 m, 1 f) and latest on 12 Dec. (77, Tule Springs, s).

ADULT RESOURCES: *Tamarix pentandra* (Tamaricaceae); *Eriogonum fascicu latum* (Polygonaceae); *Eriodictyon angustifolium* (Hydrophyllaceae); *Heliotropium curassavicum* (Boraginaceae); *Viguiera multiflora, Chaenactis fremontii, Senecio douglasii, Taraxacum officinale* (Asteraceae).

Anthocaris pima Edwards.

Common in some years, rare or absent in others in desert below 5200′. The flight period extends from mid February to early May. There is one main brood and possibly a partial second brood.

SPECIMENS EXAMINED: (123) Numerous records at low elevations between 11 Feb. (75, U.S. 93, 8 mi. N. I-15, s) and 4 May (78, Nipton Pass area, 2).

ADULT RESOURCES: *Descuriana pinnata* (Brassicaceae); *Phacelia fremontii* (Hydrophyllaceae); *Amsinckia tessellata, Cryptantha* sp. (Boraginaceae).

Anthocaris sara thoosa Scudder.

Uncommon mostly between 4000′ and 7000′ but it occasionally occurs at lower elevations. The single brood flies from mid February to late May with a peak in late March and April.

The material from southern Clark County is identical with California populations. The ventral maculation of Virgin Mountains material tends to be heavier as is southern Utah material. We agree with Emmel & Emmel (1973) on the separation of *thoosa* from Arizona *A. s. inghami* Gunder especially on the basis, especially, of ventral coloration.

SPECIMENS EXAMINED: (160) Pine Creek, 19 Mar. 64 (1 m, 1 f), 23 Mar. 77 (1 m, NSM); KC, 17.1 mi. W. U. S. 95, 22 Mar. 77 (1 m), 11 Apr. 77 (1 f); XM, 23 Mar. 78 (2 m, NSM; 2 m, 1 f), 25 Mar. 79 (21 m, 15 f), 12 Apr. 78 (1 m); Wilson Pass, 25 Mar. 78 (1 f); CC, 29 Mar. 71 (1 m, 1 f, NSM), 8 Apr. 79 (14 m, 26 f), 13 Apr. 74 (1 f, NSM), 13 Apr. 78 (8 m, 3 f), 14 Apr. 74 (3 m, NSM), 19 Apr. 75 (2 f, NSM), 27 Apr.

78 (3 m, NSM; 4 m), 10 May 78 (1 m, 1 f, NSM; 1 m); Willow Springs, 29 Mar. 78 (1 m); 2 mi. N. RC, 5 Apr. 78 (1 m, NSM; 1 m), 11 Apr. 78 (1 m, NSM), 15 Apr. 79 (6 m, 1 f), 4 May 78 (1 m); Nipton Pass, 12 Apr. 69 (6 m, 5 f, NSM); Lost Creek, 20 Apr. 77 (1 m, NSM); Potosi Mt. Rd. at Pahrump Rd., 20 Apr. 77 (1 f); RD Summit Rd., 1.5-2.1 mi. E. Lovell Wash, 24 Apr. 77 (2 f), 28 Apr. 77 (1 m, 2 f); Lovell Wash, 6.8 mi. N. Pahrump Rd., 24 Apr. 77 (1 f); WC, 27 Apr. 77 (2 f), 25 May 78 (1 f); Seep Canyon, 28 Apr. 73 (2 f, NSM); 1 mi. W. RD Summit, 28 Apr. 77 (5 m, 1 f, NSM); Cold Creek, 8 May 78 (1 m).

ADDITIONAL RECORDS: Several records from middle elevations with the earliest record on 16 Feb. (77, Spring Mt. Ranch, s).

ADULT RESOURCES: *Arctostaphylos pungens* (Eriaceae); *Phacelia fremontii* (Hydrophyllaceae); *Amsinckia tessellata* (Boraginaceae).

Euchloe hyantis lotta (Beutenmueller).

Uncommon but widespread especially at middle elevations to about 6200′. It flies in one brood from early March to mid May.

SPECIMENS EXAMINED: (134) Numerous records, usually away from the valley floors from 5 Mar. (78, PV, 2 f) to 19 May (78, 0.5-1.5 mi. E. MS, 1 m).

ADULT RESOURCES: *Phacelia fremontii* (Hydrophyllaceae); *Ribes cereum* (Saxifragaceae); *Rhus trilobata* (Anacardiaceae); *Baileya multiradiata, Taraxacum officinale* (Asteraceae).

Family Riodinidae

Apodemia mormo mormo (Felder & Felder).

Common and occasionally locally abundant, especially along roadsides and washes where *Eriogonum inflatum* is common, to 6200′. It flies in at least 4 broods from early February to mid November. It is most common and widespread in spring; summer and fall broods may reflect rainfall patterns and/or the availability of alternate foodplants.

The common phenotype is of the nominate race with little tendency towards true *A. m. deserti* Barnes & McDunnough although the latter name has been applied to southern Nevada material. This insect commonly associates with *Eriogonum inflatum* and *E. fasciculatum*. In fall, a larger and darker phenotype associated with *Eriogonum microthecum* occurs at higher elevations. This phenotype occurs similarly in the desert ranges of California (*fide* JFE). Whether this represents a distinct unnamed subspecies needs confirmation.

SPECIMENS EXAMINED: (388) Records for many localities throughout the county between 4 Feb. (77, Boulder City, AB) to 16. Nov. (77, 1.8 mi. E. Blue Diamond, 1 m). The large, dark phenotype is known from such locations as MS and WC between 6 Sept. (69, NSM) and 7 Oct. (77).

LARVAL FOODPLANTS: *Eriogonum deflexum* Torr. (Polygonaceae): 0.5 mi. E. Boulder City, 3 Oct. 77 (ovip. at base of flower). *Eriogonum plumatella* Dur. & Hilg. var. *plumatella* Dur. & Hilg. (Polygonaceae): 10 mi. W. Davis Dam, 3 Aug. 77 (larvae on flower head). *Eriogonum inflatum* Torr. & Frem. (Polygonaceae): Searchlight, 1 Oct. 68 (larvae, 1968 summ.). Adults also associated with *Eriogonum fasciculatum* (RR, GC), *Eriogonum microthecum* (MS, WC), *Eriogonum wrightii* (Pine Creek) and *Eriogonum heermannii* (2 mi. N.RC).

ADULT RESOURCES: *Sphaeralcea ambigua* (Malvaceae); *Eriogonum fasciculatum, Eriogonum heermannii, Eriogonum microthecum, Eriogonum plumatella, Eriogonum umbellatum, Eriogonum wrightii, Eriogonum* sp. (Polygonaceae); *Cryp-*

tantha sp. (Boraginaceae); *Bebbia juncea, Baileya multiradiata, Baileya pleniradiata, Chaenactis fremontii, Palafoxia linearis, Acamptopappus shockleyi, Solidago spectabilis, Chrysothamnus* sp., *Baccharis* sp., *Senecio douglasii, Tetradymia canescens, Stephanomeria* sp. (Asteraceae).

Apodemia palmeri marginalis (Skinner).

Locally common in mesquite stands in the valleys. It flies from mid April to mid October with 3 or possibly 4 broods in favorable years.

Southern Nevada material agrees well with *marginalis* described from nearby southern California and is paler and has consistently complete orange borders in contrast to the darker, supposedly nominate race from southern Arizona, with its often incomplete orange borders. A review of the species seems in order as the species was described from just north of Clark County at St. George, Utah.

SPECIMENS EXAMINED: (236) Numerous records between 17 Apr. (77, Hidden Valley, s) and 13 Oct. (77, PV, 1 m).

LARVAL FOODPLANTS: *Prosopis glandulosa* Torr. (Fabaceae): PV, 31 July 77 (ovip.). *Prosopis pubescens* Benth. (Fabaceae): PV, 2 Aug. 77 (ovip.).

ADULT RESOURCES: *Heliotropium curassavicum* (Boraginaceae); *Prosopis glandulosa, Prosopis pubescens* (Fabaceae); *Baccharis* sp. (Asteraceae).

Calephelis nemesis californica McAlpine.

Rare in fall with all records except one (Virgin Mountains) from the Logandale area of Moapa Valley in association with *Baccharis*. There are no other records for the state.

SPECIMENS EXAMINED: (13) Bowman's Reservoir, 30 July 77 (1 m); LO, 4 Sept. 66 (1 m), 27 Sept. 78 (2 m), 16 Oct. 77 (3 m, 2 f), 28 Oct. 77 (3 m); Virgin Mts. 12 Sept. 74 (1 f, NSM).

ADDITIONAL RECORDS: None.

ADULT RESOURCES: *Baccharis* sp. (Asteraceae).

Calephelis wrighti (Holland).

Small numbers frŏm the Newberry Mountains are the only Nevada records. They probably represent a small breeding colony as its known foodplant, *Bebbia juncea*, is common there.

SPECIMENS EXAMINED: (20) GC, 21 July 78 (1 m), 13 Sept. 78 (1 m; 1 m, CSL), 20 Sept. 78 (1 m, CSL), 26 Sept. 78 (2 m, 3 f, CSL; 1 m, 1 f), 29 Oct. 78 (6 m), 3 Nov. 77 (1 m); Sacatone Wash, 20 Sept. 78 (1 m, CSL; 1 m).

ADDITIONAL RECORDS: None.

ADULT RESOURCES: *Bebbia juncea* (Asteraceae).

Family Lycaenidae

Satyrium behrii behrii (Edwards).

Rare with records between early June and mid July. It may be more widespread than presently known in the Piñon-Juniper belt where its foodplant, *Purshia* is not uncommon.

SPECIMENS EXAMINED: (17) WC, 5 June 79 (2 m), 11 June 79 (9 m, 1 f), 22 June 68 (1 m), 22 June 78 (4 m).

ADDITIONAL RECORDS: MS, 23 June 65 (PJH), 30 June 63 (KR); WC, 13 July 72 (DEA).

ADULT RESOURCES: *Eriodictyon angustifolium* (Hydrophyllaceae); *Marrubium vulgare* (Lamiaceae).

Ministrymon leda (Edwards).

Locally common in association with *Prosopis glandulosa* in Paradise Valley near Las Vegas and scattered records elsewhere. There appear to be 2 broods. Most individuals are typical *leda* although there are single spring and fall specimens of form "ines" from Hidden Valley.

SPECIMENS EXAMINED: (30) Hidden Valley, 13 Apr. 78 (1 f "ines"), 12 July 77 (1 f), 16 Oct. 77 (1 m "ines"); GC, 1 June 78 (2 m), 3 July 78 (1 f); Lovell Wash, 7.5 mi. N. Pahrump Rd., 22 June 77 (1 f); PV, 9 May 78 (1 m), 24 June 78 (1 m), 18 July 77 (4 m, 4 f), 26 July 77 (2 m, 4 f), 31 July 77 (4 f); 27 June 66 (1 m); KC, 17.1 mi. W. U.S. 95 (1 m); WC, 19 Aug. 77 (1 f).

ADDITIONAL RECORDS: PV, 26 May 79, 3 July 77, 2 Aug. 77 (s).

ADULT RESOURCES: *Tamarix pentandra* (Tamaricaceae); *Eriodictyon angustifolium* (Hydrophyllaceae); *Acacia greggii, Prosopis glandulosa* (Fabaceae); *Helianthus annuus, Baileya multiradiata* (Asteraceae).

Callophrys fotis fotis (Strecker).

Usually uncommon but in some years exceedingly abundant, at least locally, at middle elevations from 4000′ to 6800′, always in association with *Cowania mexicana*. The flight period is from late March to mid May. Fresh specimens from Cold Creek on 13 June 1977 are undoubtedly from a partial second brood perhaps in response to early June rainfall.

SPECIMENS EXAMINED: (230) GS, 28 Mar. 68 (1, NSM); Lost Creek, 29 Mar. 78 (2 m, 1 f); CC, 8 Apr. 79 (1 m, 1 f); 2 mi. N. RC, 9 Apr. 79 (3 m), 15 Apr. 79 (7 m, 8 f); CP Rd., 0.6-1.8 mi. S. Pahrump Rd., 16 Apr. 77 (4 f); 16 Apr. 79 (5 m, 7 f); White Rock Spring, 21 Apr. 79 (1 m, 9 f); WC, 23 Apr. 78 (7 m, 6 f), 27 Apr. 77 (30 m, 33 f; 12 m, 13 f, NSM), 29 Apr. 77 (12 m, 2 f, NSM), 8 May 78 (2 m, 2 f), 13 June 77 (1 f); RD Summit Rd., 1.5-2.1 mi. E. Lovell Wash, 24 Apr. 77 (18 m, 22 f), 28 Apr. 77 (3 m); WC, 27 Apr. 77 (5 m, 2 f), 8 May 78 (1 f); 1 mi. W. RD Summit, 28 Apr. 77 (2 m, 1 f, NSM); KC, 15.7 mi. W. U.S. 95, 1 May 77 (2 m, 1 f); KC, 17.1 mi. W. U.S. 95, 2 May 77 (1 f); LC, 6 May 62 (1 m); Charleston Mts., 12 May 34 (1 f, LACM).

ADDITIONAL RECORDS: GS, 23 Mar. 68 (1968 summ.), 20 Apr. 75 (JB); RD, 23 Mar. 75 (JB, REW); RC, 24 Mar. 74 (REW), 24 Mar. 75 (JB), 7 Apr. 74 (REW); Potosi Mt. Rd., 6-8 Apr. 68 (REW); CP, 7 Apr. 74 (REW); RD near Calico Hills, 19 Apr. 75 (JB); White Rock Springs, 19 Apr. 75 (JB); CP Rd., 0.6-1.5 mi. S. Pahrump Rd., 20 Apr. 77, 29 Apr. 79 (s); KC, 6800′, 3-4 May 75 (1975 summ.); 0.5 mi. E. MS, 13 May 79 (s).

LARVAL FOODPLANTS: *Cowania mexicana* var. *stansburiana* (Torr.) Jeps. (Rosaceae): WC, 27 Apr. 77 (ovip.).

ADULT RESOURCES: *Ribes aureum* (Saxifragaceae); *Arctostaphylos pungens* (Ericaceae); *Salix lasiolepis* (Salicaceae); *Rhus trilobata* (Anacardiaceae); *Taraxacum officinale* (Asteraceae).

Callophrys eryphon eryphon (Boisduval).

One relatively fresh male from the Virgin Mountains is the only county record. The nearest known Nevada population is in the Wilson Creek Range, Lincoln County (GTA, CSL).

SPECIMENS EXAMINED: (1) CC, 20 May 76 (1 m, NSM).

ADDITIONAL RECORDS: None.

Callophrys spinetorum (Hewitson).

Uncommon at middle elevations from 4400′ to 7000′. It flies in 2 broods from early

April to late May and early June to early August. The earlier brood occurs mainly below 6000′; later brood is mainly above 6000′. Adults are particularly fond of the flowers of *Eriodictyon*. Males commonly perch on ridge-top piñons and junipers.

SPECIMENS EXAMINED: (42) White Rock Springs, 21 Apr. 79 (11 m); RD Summit Rd., 1.5-2.1 mi. E. Lovell Wash, 24 Apr. 77 (3 f), 28 Apr. 77 (2 f); 0.5 mi. E. MS, 13 May 79 (8 m); WC, 25 May 78 (1 m), 5 June 79 (1 m), 11 June 79 (1 m), 20 July 78 (1 m, 1 f), 28 July 77 (1 m); Deer Creek Rd., 7000′, 3 July 61 (2 m); Lovell Wash, 6100-6600′, 14 July 62 (1 m, 3 f), 18 July 62 (3 m, 3 f).

ADDITIONAL RECORDS: Potosi Mt. Rd., 6 Apr. 74 (REW), 8 Apr. 71 (REW); WC, 27 Apr. 77, 30 May 66 (s); Willow Springs, 10 May 66 (JFL); Mt. Charleston, 15 June 40 (Shields 1965); RD Summit Rd., 1.5 mi. E. Lovell Wash, 22 June 77 (s); SM, 7000′, 23 June 61 (KR); LC, 6000′, 23 June 61 (KR); Charleston Peak, 29 June 35 (Howe 1975); WC, 13 July 72 (DEA), 16 July 72 (JFL); Charleston Mts., 6 Aug. 61 (1961 summ.).

ADULT RESOURCES: *Clematis ligusticifolia* (Ranunculaceae); *Arctostaphylos pungens* (Ericaceae); *Eriodictyon angustifolium* (Hydrophyllaceae); *Salix lasiolepis* (Salicaceae); *Rhus trilobata* (Anacardiaceae); *Tetradymia canescens* (Asteraceae).

Callophrys siva siva (Edwards).

Fairly common at the middle elevations in the Piñon-Juniper belt. It flies in 2 broods from late March to late May and early June to late July with some variation depending on elevation.

Clark County material is assigned to nominate *siva* on the advice of John Lane. All populations in the county, however, show some intermediacy with the unnamed Great Basin brown population occurring farther north.

SPECIMENS EXAMINED: (131) CC, 8 Apr. 79 (2 m), 20 May 79 (1 f); MM, 12 Apr. 69 (1 m, NSM); 2 mi. N. RC, 15 Apr. 79 (4 m, 2 f); CP Rd., 1.8 mi. S. Pahrump Rd., 16 Apr. 77 (1 f); RD Summit Rd., 1.5-2.1 mi. E. Lovell Wash, 24 Apr. 77 (1 m, 2 f), 28 Apr. 77 (1 m; 1 f, CSL), 2 June 77 (1 m, 1 f), 22 June 77 (4 m, 7 f), 27 July 77 (1 m); WC, 27 Apr. 77 (1 m, 1 f), 29 Apr. 77 (2 m, 1 f, CSL; 1 f, NSM) 30 May 66 (1 m), 6 June 78 (1 m, 1 f), 13 June 77 (2 f), 22 June 78 (1 m; 3 f), 4 July 62 (1 f), 28 July 77 (1 m); WC, 27 Apr. 77 (1 f), 5 June 79 (6 m, 3 f), 6 June 78 (1 f), 11 June 79 (23 m, 10 f), 22 June 68 (1 f), 22 June 78 (1 f), 1 July 77 (1 m, 1 f); KC, 5680′, 1 May 66 (1 m); Pine Creek, 2 May 77 (1 f); 0.5 mi. E. MS, 13 May 79 (2 f); Charleston Mts., 14 May 34 (1 f, LACM); Potosi Mt. Rd. at Pahrump Rd., 2 June 77 (1 m); Trout Canyon Rd., 14 June 77 (5 m, 2 f); KC, 14.5 mi. W. U.S. 95, 14 June 77 (1 m), 20 June 77 (1 m), 20 June 79 (1 m, 1 f), 6 July 77 (2 m); Lovell Wash, 22 June 77 (3 m), 14 July 62 (1 m, 1 f), 18 July 62 (1 m, 2 f), 27 July 77 (1 m); LC at Mack's Canyon Rd., 23 June 77 (1 f); Mormon Well, 1 July 69 (1, LACM); 26 mi. E. CN, Mormon Well Rd., 1 July 69 (1, LACM); Sawmill Canyon, 6000-7000′, 2 July 69 (5, LACM); KC, 17.1 mi. W. U.S. 95, 5 July 78 (2 f); Cold Creek Ranger Station, 20 July 77 (2 m).

ADDITIONAL RECORDS: Early spring specimens have also been taken near GS, 23 Mar. 77 (KBT); Pine Creek, 23 Mar. 72 (JFL): RC, 24 Mar. 75 (JB) and Potosi Mt. Rd., 8 Apr. 71 (REW). Additional records are for locations and span of dates listed above.

ADULT RESOURCES: *Clematis ligusticifolia* (Ranunculaceae); *Stanleya pinnata* (Brassicaceae); *Eriogonum microthecum, Eriogonum umbellatum* (Poly gonaceae); *Arctostaphylos pungens* (Ericaceae); *Sarcostemma cynachoides* (Asclepiadaceae); *Eriodictyon angustifolium* (Hydrophyllaceae); *Cryptantha jamesii* (Boraginaceae); *Melilotus albus, Trifolium repens* (Fabaceae); *Salix* sp. (Salicaceae); *Rhus trilobata*

(Anacardiaceae); *Viguiera multiflora, Baccharis* sp., *Senecio douglasii, Senecio multilobatus, Tetradymia canescens* (Asteraceae).

Callophrys sheridanii comstocki Henne.

Locally common with all records except one (Virgin Mountains) for the higher desert area between Goodsprings and Mountain Springs Summit. There are two broods from late March to early May and late August to mid September. The fall brood is more yellow-green below than the spring brood as found in California populations (Emmel and Emmel 1973).

SPECIMENS EXAMINED: (152) 0.7 mi. NNW Wilson Pass (4 m, JFE); Wilson Pass, 25 Mar. 78 (1 m), 29 Mar. 78 (1 m); CC, 29 Mar. 71 (1 f, NSM); 6 mi. N. GS, 4 Apr. 77 (10 m, 3 f, DM); 2-3.3 mi. N. RC, 5 Apr. 78 (9 m, NSM; 30 m, 1 f), 11 Apr. 78 (2 m, NSM), 15 Apr. 79 (39 m), 4 May 78 (1 m), 21 Aug. 79 (11 m), 26 Aug. 79 (2 m, 1 f), 2 Sept. 78 (21 m, 9 f), 3 Sept. 78 (2 m, NSM), 8 Sept. 78 (2 m, NSM), 11 Sept. 78 (2 m).

ADDITIONAL RECORDS: GS, 23 Mar. 68 (Callaghan 1970); RC, 24 Mar. 75 (JB, REW), 7 Apr. 74 (REW); Potosi Mt. Rd., 6 Apr. 71 (REW); GS, 11 Apr. 71 (s); N. GS, 20 Apr. 75 (JB).

LARVAL FOODPLANTS: *Eriogonum heermannii* Dur. & Hilg. var. *sulcatum* (S. Wats.) Munz & Reveal (Polygonaceae): 2-3 mi. N. RC, several dates (adult assoc.).

ADULT RESOURCES: *Eriogonum heermannii, Eriogonum microthecum* (Polygonaceae); *Rhus trilobata* (Anacardiaceae); *Chrysothamnus* sp. (Asteraceae).

Atlides halesus corcorani (Clench).

Locally common in the valleys in stands of *Prosopis* or *Acacia* on which its foodplant, *Phoradendron californicum*, is parasitic. The flight period extends from late February to mid November involving at least 4 broods with peaks in early April, early June, late July and October. The last 2 broods appear to be more numerous than earlier broods. There are a few high elevation specimens which may represent strays or small colonies on *Phoradendron juniperinum*.

SPECIMENS EXAMINED: (106) Records extend from 25 Feb. (78, PV, 1 f) to 11 Dec. (77, GC, 1 f). High elevation specimens are: 0.5 mi. E. MS, 13 May 79 (2 m), 19 May 78 (2 m); WC, 28 July 77 (1 f); WC, 6 June 78 (2 f).

LARVAL FOODPLANTS: *Phoradendron californicum* Nutt. (Viscaceae) on *Prosopis glandulosa*: PV, 18 July 77 (ovip.).

ADULT RESOURCES: *Tamarix pentandra* (Tamaricaceae); *Eriogonum fasciculatum, Eriogonum plumatella, Eriogonum* sp. (Polygonaceae); *Sarcostemma hirtellum* (Asclepiadaceae); *Eriodictyon angustifolium* (Hydrophyllaceae); *Acacia greggii, Prosopis glandulosa* (Fabaceae); *Salix* sp. (Salicaceae); *Sambucus caerulea* (Caprifolicaceae); *Bebbia juncea, Solidago spectabilis, Baccharis* sp., *Senecio douglasii, Tetradymia canescens, Pluchea sericea* (Asteraceae).

Strymon melinus pudica (H. Edwards).

Common, especially in agricultural areas, but with records for a variety of habitats to 9000′. The flight period extends from late March through mid November involving several broods. Desert records are for spring and fall. Clark County material is tentatively assigned to the California race on the advice of Glenn A. Gorelick pending completion of his study on this species.

SPECIMENS EXAMINED: (209) Records for numerous locations between 25 Mar. 79, XM, (1 m) and 16 Nov. (77, KC, s); high elevation records extend from 30 May (66, WC, 1 m) to 26 Oct. (77, WC, 1 f).

ADULT RESOURCES: *Tamarix pentrandra* (Tamaricaceae); *Eriogonum fasciculatum, Eriogonum heermanni, Eriogonum plumatella, Eriogonum umbellatum, Eriogonum wrightii* (Polygonaceae); *Apocynum androsaemifolium* (Apocynaceae); *Sarcostemma hirtellum* (Asclepiadaeae); *Eriodictyon angustifolium* (Hydrophyllaceae); *Marrubium vulgare* (Lamiaceae); *Fallugia paradoxa* (Rosaceae); *Acacia greggii, Prosopis glandulosa, Prosopis pubescens, Medicago sativa, Melilotus albus* (Fabaceae); *Helianthus annuus, Bebbia juncea, Baileya pleniradiata, Hymenoxys cooperi, Solidago spectabilis, Chrysothamnus* sp., *Baccharis* sp., *Senecio douglasii, Tetradymia axillaris, Tetradymia canescens, Pluchea sericea, Cirsium* sp. (Asteraceae).

Lycaena helloides (Boisduval).

Locally common in agricultural areas of Moapa and Virgin valleys. There are at least 3 broods in a season ranging from mid April to late October. The fall brood is by far the largest, peaking in early to late October. The larvae undoubtedly feed on *Rumex* sp. which commonly borders fields and adults are often taken at *Medicago* flowers.

SPECIMENS EXAMINED: (56) LO, 13 Apr. 78 (1 m), 10 July 68 (1 m), 9 Aug. 77 (1 m, 2 f), 23 Aug. 77 (1 f), 17 Sept. 77 (1 f), 28 Sept. 67 (2 m, NSM), 28 Sept. 68 (2 f, NSM), 9 Oct. 77 (1 m, 9 f), 10 Oct. 64 (6 m, 12 f, NSM), 16 Oct. 77 (7 m, 4 f), 21 Oct. 79 (1 m); OV, 7 June 77 (1 m); Hidden Valley, 23 Oct. 77 (1 m, 3 f).

ADDITIONAL RECORDS: Bunkerville, 17 May 78 (s); Hidden Valley, 7 June 77 (s); LO, 27 June 77, 30 July 77, 4 Sept. 77, 29 Sept. 77, 23 Oct. 77 (s).

ADULT RESOURCES: *Convolvulus* sp. (Convolvulaceae); *Medicago sativa* (Fabaceae); *Helianthus annuus, Baccharis* sp. (Asteraceae).

Lycaena dorcas castro (Reakirt).

The single southern Nevada record was reported by Ferris (1977) from Charleston Park (Kyle Canyon). If a colony once occurred here, it apparently no longer exists as there are no recent records for this well collected area. The specimen may be mislabelled.

SPECIMENS EXAMINED: None.

ADDITIONAL RECORDS: Charleston Park, 8000′, 26 July 28 (1 m, *fide* CDF).

Brephidium exilis (Boisduval).

Locally abundant in somewhat alkaline areas of valleys, otherwise rare to common in a variety of habitats to elevations of 8400′. The flight period at low elevations is from early March to mid December and at high elevations from early May to mid November. The lateness of the first records at high elevations suggests no overwinter survival there. Reproduction (2-3 broods) occurs at least as high as 6800′ where the species is associated with *Atriplex canescens*. At low elevations, 4 to 5 or more overlapping broods are produced.

SPECIMENS EXAMINED: (513) Many records from virtually throughout the county. In the lowlands earliest and latest records are 3 Mar. (67, LO, NSM) and 12 Dec. (77, Tule Springs, s). Montane records are from 8 May (78, WC) to 12 Nov. (77, WC, s).

LARVAL FOODPLANTS: *Atriplex canescens* (Pursh) Nutt. ssp. *linearis* (Wats.) Hall & Clements (Chenopodiaceae): several locations, many dates (adult assoc.). *Suaeda torreyana* Wats. (Chenopodiaceae): Hidden Valley, 9 Oct. 77 (larvae); several locations, many dates (adult assoc.). *Salsola* spp. (probably including *S. iberica* Sennen & Pau. and *S. paulsenii* Litv., see Beatley 1976) (Chenopodiaceae): many locations, many dates (adult assoc.).

ADULT RESOURCES: *Sphaeralcea ambigua* (Malvaceae); *Tamarix pentandra* (Tamaricaceae); *Lepidium fremontii* (Brassicaceae); *Eriogonum fasciculatum, Eriogonum heermannii, Eriogonum wrightii, Polygonum lapathifolium* (Polygonaceae); *Eriodictyon angustifolium* (Hydrophyllaceae); *Heliotropium curassavicum* (Boraginaceae); *Prosopis glandulosa, Medicago sativa, Melilotus albus* (Fabaceae); *Rhus trilobata* (Anacardiaceae); *Viguiera multiflora, Bebbia juncea, Baileya pleniradiata, Baileya multiradiata, Chrysothamnus* sp., *Baccharis* sp., *Senecio douglasii, Senecio multilobatus, Cirsium* sp., (Asteraceae).

Leptotes marina (Reakirt).

Common to abundant in a variety of habitats to 7000′ with occasional occurrences as high as 11,000′. The flight season is from late March to mid November at low elevations and from late April to late August at high elevations. Desert records are mainly from March to May. At least 3 broods are produced in mesquite habitat (May, June, July), continuous broods in agricultural areas (May-October) and a single brood at high elevations (June-July).

SPECIMENS EXAMINED: (403) Numerous records at many locations at low elevations with records from 25 Mar. (72, 9 mi. W. Davis Dam, REW) to 12 Nov. (77, Tule Springs, s). High elevation records are few but widespread from 29 Apr. (77, WC, CSL) to 26 Oct. (77, WC, 1 m).

LARVAL FOODPLANTS: *Acacia greggii* Gray (Fabaceae): PV, 8 June 77 (ovip. at base of flower buds). *Prosopis glandulosa* Torr. (Fabaceae): 0.5 mi. E. Blue Diamond, 22 May 78 (ovip. on flower buds, 09:30 PST).

ADULT RESOURCES: *Clematis ligusticifolia* (Ranunculaceae); *Larrea tridentata* (Zygophyllaceae); *Tamarix pentandra* (Tamaricaceae); *Sisymbrium altissimum, Rorippa nasturtium-aquaticum* (Brassicaceae); *Eriogonum* sp., *Eriogonum fasciculatum* (Polygonaceae); *Sarcostemma hirtellum* (Asclepiadaceae); *Eriodictyon angustifolium* (Hydrophyllaceae); *Heliotropium curassavicum* (Boraginaceae); *Acacia greggii, Prosopis glandulosa, Prosopis pubescens, Medicago sativa, Melilotus albus, Trifolium repens* (Fabaceae); *Rhus trilobata* (Anacardiaceae); *Viguiera deltoidea, Bebbia juncea, Baileya multiradiata, Chaenactis fremontii, Haplopappus* sp., *Baccharis* sp., *Senecio douglasii, Tetradymia canescens, Pluchea sericea, Cirsium* sp. (Asteraceae).

Hemiargus ceraunus gyas (Edwards).

Fairly common throughout at elevations below 7800′ and occasional to 11,000′. The flight period at low elevations is from early April to mid November. Along small desert washes, there are broods in April-May and October-November; in mesquite stands and agricultural areas, there is a large brood flying from early July through mid September depending on location and with scattered individuals at other times of the year and at high elevations, there are at least 2 broods peaking in July and October.

SPECIMENS EXAMINED: (179) Numerous records, especially at low elevations from 4 Apr. (77, PV, s) to 12 Dec. (77, Tule Springs, s). High elevation records are from 13 June (77, WC, 1 f) to 12 Nov. (77, WC, 3 m).

LARVAL FOODPLANTS: *Psorothamnus fremontii* (Torr.) Barneby (Fabaceae): RR, 14 May 77 (ovip. on new leaf growth, 10:30 PST); U.S. 93, 5 mi. N. I-15, 14 May 78 (ovip. on leaf buds, 09:15 PST).

ADULT RESOURCES: *Tamarix pentandra* (Tamaricaceae); *Eriogonum deflexum, Eriogonum fasciculatum, Eriogonum wrightii* (Polygonaceae); *Physalis cras-*

sifolia (Solanaceae); *Acacia greggii, Prosopis glandulosa, Prosopis pubescens, Medicago sativa, Melilotus albus, Psorothamnus fremontii* (Fabaceae); *Bebbia juncea, Chaenactis fremontii, Palafoxia linearis, Erigeron* sp., *Senecio douglasii, Tetradymia axillaris* (Asteraceae).

Hemiargus isola alce (Edwards).

Commoner than the above with an equally broad ecological range but has a more restricted season. Records extend from early April to late July at low elevations and from late April to early August (once late October) at high elevations. Desert records are for a single brood in April and May, at least 3 broods are produced in mesquite stands (April, May, July) and a single brood flies in July at high elevations. This species is outnumbered by *ceraunus* only in agricultural areas.

SPECIMENS EXAMINED: (212) Numerous records from many locations to 11,000'. Records extend from 8 Apr. (77, several locations) to 31 July (77, PV s) at low elevations and 18 Apr. (77, KC, 17.1 mi. W. U.S. 95, 1 f) to 5 Aug. (77, WC, 1 f and Cold Creek, 1 m) at high elevations. One very late specimen on 26 Oct. 77 (WC, 1 m).

ADULT RESOURCES: *Sisymbrium altissimum* (Brassicaceae); *Eriogonum umbellatum* (Polygonaceae); *Sarcostemma hirtellum* (Asclepiadaceae); *Eriodictyon angustifolium* (Hydrophyllaceae); *Acacia greggii, Prosopis glandulosa, Prosopis pubescens, Melilotus albus, Melilotus officinalis, Trifolium repens* (Fabaceae); *Rhus trilobata* (Anacardiaceae); *Viguiera multiflora, Baileya pleniradiata, Tetradymia axillaris, Senecio douglasii, Pluchea sericea, Cirsium* sp. (Asteraceae).

Plebejus melissa melissa (Edwards).

Rare in agricultural areas of Moapa Valley in fall with records from early September to late October. Clark County material is tentatively assigned to the nominate race but may represent an undescribed subspecies. The insect is fairly small, the wings (especially the hindwing) appear more rounded than those of other populations examined and the females are quite dark with barely a hint of basal blue overscaling.

SPECIMENS EXAMINED: (7) OV, 4 Sept. 66 (2 m, 1 f); LO, 4 Sept. 66 (1 m), 16 Oct. 77 (1 m, 1 f); Hidden Valley, 23 Oct. 77 (1 f).

ADDITIONAL RECORDS: OV, 29 Sept. 66, 10 Oct. 64 (PJH).

Plebejus icarioides evius (Boisduval).

Common to abundant in stands of *Lupinus* above 6400' mainly in the Kyle Canyon and Lee Canyon areas of the Spring Range. The flight period of the single brood is from mid May to early September. There are records from the Virgin Mountains from mid May to late June and in early October.

The Spring Range specimens are of large size with relatively strong maculation and fit closest to the concept of *evius*. The females are variable and over 60% have orange scaling on the hindwing above. The few specimens from the Virgin Mountains are smaller in size, have reduced maculation beneath and the females have increased black scaling on the forewing above and no orange scaling. They thus tend towards the Great Basin *P. i. ardea* (Edwards).

SPECIMENS EXAMINED: (316) Numerous records for the Spring Range to 11,300' from 12 May (34, Charleston Mts. 1 f, LACM) to 1 Sept. (77, KC Ski Run, 6 m, 3 f). Also recorded in the Virgin Mountains: 20 May 79 (1 m), 30 May 74 (2 m, 1 f, NSM), 7 June 78 (s), 26 June 78 (2 m, 3 f), 7 Oct. 73 (1 f, NSM).

ADULT RESOURCES: *Linum lewisii* (Linaceae); *Eriogonum umbellatum* (Polygonaceae); *Potentilla propinqua* (Rosaceae); *Lupinus* sp., *Melilotus albus* (Fabaceae); *Chaenactis douglasii, Erigeron* sp., *Senecio douglasii* (Asteraceae).

Plebejus shasta charlestonensis Austin.

Usually rare (may be common in some years) in Kyle and Lee canyons above 8200′ and in the Willow Creek area at 6000′ to 8000′. The flight period of the single brood is from early July to mid August. This taxon was recently described by Austin (1980).

SPECIMENS EXAMINED: (17) LC Ski area, 5 July 76 (1 m, DM); LC, 8250′-8800′, 21 July 63 (7 m, 7 f); KC, 9000′, 25 July 65 (1 m); KC, 8500′, 27 July 65 (1 m).

ADDITIONAL RECORDS: Deer Creek Rd., 7000′, 1 July 50 (FWP, figured *in* Howe 1975); Cathedral Rock, 10 July 72 (DEA); WC, 6000-8000′, 15 July 28 (Gunder colln. at American Museum of Natural History, *fide* JFE); LC Ski Area, 12-17 Aug. 63 (JFL).

Plebejus acmon acmon (Westwood & Hewitson).

This taxon is known in the county only from the Newberry Mountains and a single specimen from Las Vegas. The flight period is from late March to late October. The Newberry Mountains' population of *P. acmon* (referred to as *acmon acmon*) has a pinkish-orange submarginal band on the secondaries and a narrow, non-infusive dark margin on the primaries. All other Clark Co. populations (referred to as *acmon texanus*) have an orange (with no pink tinge) submarginal band on the secondaries. The dark margin on the primaries is broad with an indistinct inner border.

SPECIMENS EXAMINED: (15) XM, 12 May 78 (1 f), 23 May 78 (1 f), 1 June 78 (1 m, 2 f), 3 July 78 (1 f), 21 July 78 (1 m, 1 f), 4 Aug. 78 (1 f); Las Vegas, 29 June 62 (1 m); GC, 3 July 78 (1 m, 1 f) 21 July 78 (1 m), 4 Aug. 78 (1 m), 29 Oct. 78 (1 m).

ADDITIONAL RECORDS: 9 mi. W. Davis Dam, 31 Mar. 77 (CSL); XM, 21 May 73 (PJH); GC, 26 Sept. 78 (s).

ADULT RESOURCES: *Eriogonum fasciculatum, Eriogonum plumatella* (Polygonaceae); *Tetradymia axillaris* (Asteraceae).

Plebejus acmon texanus Goodpasture.

This race of *acmon* constitutes the bulk of records for the species in Clark County. It is found throughout except in the Newberry Mountains and at the highest elevations. It flies in several broods from late March to late October.

SPECIMENS EXAMINED: (230) Many locations and dates between 28 Mar. (71, 6 mi. N. Apex, 1 m, NSM) and 26 Oct. (77, WC, 1 m).

ADULT RESOURCES: *Eriogonum umbellatum* (Polygonaceae); *Sarcostemma cynachoides* (Asclepiadaceae); *Eucrypta micrantha, Phacelia fremontii, Eriodictyon angustifolium* (Hydrophyllaceae); *Crypthantha* sp. (Boraginaceae); *Potentilla propingua* (Rosaceae); *Melilotus albus, Astragalus lentiginosus* (Fabaceae); *Viguiera multiflora, Eriophyllum wallacei, Tetradymia canescens, Cirsium* sp. (Asteraceae).

Everes amyntula (Boisduval).

Uncommon in the Spring Range at elevations between 6000′ and 9000′. It appears to be single brooded with records from mid May to late July and single records in late August and early October.

SPECIMENS EXAMINED: (28) Charleston Mts., 12 May 34 (5 m, LACM); WC, 25 May 78 (1 m), 5 June 79 (1 m), 6 June 78 (1 m), 13 June 77 (1 m), 22 June 68 (2 m), 22 June 78 (1 m), 30 Aug. 77 (1 m), 1 Oct. 73 (1 m, UNLV); KC Campground, 31 May 77 (2 m), 8 June 77 (2 m, 3 f), 17 June 77 (1 m); WC, 13 June 77 (1 m), 28 July 77 (2 m); above Cathedral Rock Campground, 17 June 77 (1 m); LC Ski Area, 29 July 77 (1 m, 1 f).

ADDITIONAL RECORDS: WC, 1 July 77 (s), 13 July 72 (DEA), 16 July 72 (JFL), 28 July 77 (s); KC Campground, 22 June 78 (s).

ADULT RESOURCES: *Eriogonum umbellatum* (Polygonaceae).

Euphilotes battoides nr. *ellisii* (Shields).

A population with a phenotype similar to that of populations in desert mountains of eastern California flies during August and September in the southern Spring Range. We have been unable to find it around its suspected foodplant in other portions of the Spring Range.

The use of the genus *Euphilotes* follows Mattoni (1977).

SPECIMENS EXAMINED: (22) 2-3.3 mi. N. RC, 19 Aug. 79 (2 m), 21 Aug. 79 (1m, 2 f), 26 Aug. 79 (1 m, 1 f), 2 Sept. 78 (1 m, 6 f), 3 Sept. 78 (1 f, NSM), 8 Sept. 78 (1 m, 2 f, NSM; 2 f); 11 Sept. 78 (2 f).

ADDITIONAL RECORDS: None.

LARVAL FOODPLANTS: *Eriogonum heermannii* Dur. & Hilg. var. *sulcatum* (S. Wats.) Munz & Reveal (Polygonaceae): 3 mi. N. RC, 2, 11 Sept. 78 (adult assoc.).

ADULT RESOURCES: *Eriogonum heermanni* (Polygonaceae).

Euphilotes battoides martini (Mattoni).

Common in association with *Eriogonum fasciculatum* especially in the Newberry Mountains. Smaller populations occur in the Spring, Virgin and Las Vegas ranges. The flight period is from mid March to late May.

SPECIMENS EXAMINED: (357) Newberry Mts., 8 Apr. 70 (1 m, NSM); 9 mi. W. Davis Dam, 8 Apr. 77 (5 m, 1 f, NSM; 7 m, 4 f), 20 Apr. 78 (9 m, NSM; 7 m, 3 f), 22 Apr. 79 (12 m, 12 f), 1 May 75 (1 m, 1 f, NSM); 3 May 78 (9 m, 12 f), 12 May 78 (1 m, 1 f), 23 May 78 (1 m); GC, 8 Apr. 78 (2 m, 1 f, NSM; 3 m, 1 f), 12 Apr. 78 (1 m, NSM; 2 m, 2 f), 15 Apr. 78 (5 m, 1 f), 20 Apr. 78 (4 m, NSM; 12 m, 1 f), 3 May 78 (8 m, 5 f); XM, 22 Apr. 79 (39 m, 2 f), 3 May 78 (25 m, 22 f), 5 May 77 (4 m, 12 f, NSM; 6 m), 6 May 79 (29 m, 30 f), 12 May 78 (5 m, 6 f), 23 May 78 (4 f); Pine Creek, 2 May 77 (1 m), 22 May 78 (3 m, 4 f); Bridge Canyon, 3 May 78 (4 m, 3 f); CC, 10 May 78 (3 m, 1 f), 17 May 78 (5 m, 5 f), 18 May 78 (2 m, 1 f), 20 May 79 (1 f); U.S. 93, 5-8 mi. N. I-15, 14 May 78 (1 m, 4 f).

ADDITIONAL RECORDS: GC, 18 Mar. 72 (JFL), 12 May 78 (s); XM, 18 Mar. 72 (JFL), 20 Apr. 78 (s); 9 mi. W. Davis Dam, 25 Mar. 72 (REW), 31 Mar. 77 (CSL); CC, 20 May 78, 29 May 78 (s).

LARVAL FOODPLANTS: *Eriogonum fasciculatum* Benth. ssp. *poliofolium* (Benth.) S. Stokes (Polygonaceae): 9 mi. W. Davis Dam, 8 Apr. 77 (ovip. on flower heads, 10:00 PST); GC, several dates (adult assoc.); XM, several dates (adult assoc.); Pine Creek, 2 May 77, 22 May 78 (adult assoc.); CC, several dates (adult assoc.); U.S. 93, 5-8 mi. N. I-15, 14 May 78 (adult assoc.).

ADULT RESOURCES: *Eriogonum fasciculatum* (Polygonaceae); males and, occasionally females visit mud.

Euphilotes battoides baueri (Shields).

This taxon has been recorded once in Clark County. It was originally reported as "*Philotes*" *mojave* collected on 14 April 1969 (1969 summ.); the specimens are the only ones located in Nevada State Museum bearing the date of 13 May 1969. We retain the label date but point out the strong possibility that the correct one is in April (see introduction) or that these specimens are not from Clark County.

SPECIMENS EXAMINED: (2) AC, 13 May 69 (1 m, 1 f, NSM). This record also was reported by Shields (1975).

ADDITIONAL RECORDS: None.

Euphilotes enoptes (Boisduval) ssp.

A nearly purple, heavily marked population of *enoptes* occurs in the Spring Range between 6100′ and 7200′. It flies in association with *Eriogonum umbellatum* from early June to mid August. This unnamed population has been variously referred to as near *E. e. enoptes* and *E. e. ancilla* (Barnes & McDunnough).

SPECIMENS EXAMINED: (192) WC, 5 June 79 (60 m), 6 June 78 (53 m), 11 June 79 (33 m), 13 June 77 (9 m), 20 July 77 (7 m, 1 f); end KC, 2 July 36 (1 m, LACM); KC Campground, 25 July 77 (2 m, 1 f); WC, 20 July 78 (10 m, 5 f), 28 July 77 (5 m, 4 f), 19 Aug. 77 (1 m).

ADDITIONAL RECORDS: WC, 17 June 77 (s), 16 July 72 (JFL), 28 July 77 (s); Mt. Charleston, 7200′, 26 June 59 (Shields 1977); KC, 17.1 mi. W. U.S. 95, 6 July 77 (s); KC, 7100′, 14 July 66 (Shields 1977).

LARVAL FOODPLANTS: *Eriogonum umbellatum* Torr. var. *subaridum* S. Stokes (Polygonaceae): WC, 28 July 77 (ovip. on flowers, 08:30 PST).

ADULT RESOURCES: *Eriogonum umbellatum* (Polygonaceae); males frequent mud.

Euphilotes enoptes dammersi (Comstock & Henne).

The only records are from mid September to early October in the Newberry Mountains and in the Spring Range at Pine Creek. The one previous record for Nevada is for Lincoln County (Shields 1977).

SPECIMENS EXAMINED: (55) GC, 13 Sept. 78 (2 m, NSM), 20 Sept. 78 (1 m, 2 f, NSM; 4 m, 4 f), 26 Sept. 78 (2 m, 3 f, NSM; 2 m 5 f), 27 Sept. 77 (3 m), 4 Oct. 77 (6 m, 2 f); XM, 13 Sept. 78 (1 m, 2 f); Pine Creek, 19 Sept. 78 (1 m), 19 Sept. 79 (3 m, 5 f), 22 Sept. 78 (2 m, 5 f).

ADDITIONAL RECORDS: Sacatone Wash, 26 Sept. 78 (s).

LARVAL FOODPLANTS: *Eriogonum wrightii* Torr. *ex* Benth (Polygonaceae): GC, 4 Oct. 77 (ovip. on flower buds, 10:00 PST).

ADULT RESOURCES: *Eriogonum plumatella, Eriogonum umbellatum, Eriogonum wrightii* (Polygonaceae); males visit mud.

Euphilotes mojave (Watson & Comstock).

A population of this species was discovered in the Virgin Mountains in 1978. It flies from early May to early June at elevations between 3800′ and 6000′. Although this population is undoubtedly *mojave* there are certain differences from nominate *mojave* and the population probably deserves a name. There are no previous Nevada records (those reported in the 1969 summ. are actually *battoides*, see above).

We agree with Mattoni (1977) that *mojave* deserves specific status and is not a race of *enoptes* as suggested by Shields (1975).

SPECIMENS EXAMINED: (84) CC, 10 May 78 (9 m), 18 May 78 (25 m, 9 f), 20 May 78 (6 m, 4 f), 20 May 79 (16 m, 10 f), 29 May 78 (1 m, 2 f), 7 June 78 (2 m).

ADDITIONAL RECORDS: None.

LARVAL FOODPLANTS: *Eriogonum nidularium* Cov. (Polygonaceae): CC, 20 May 78 (abdominal probing near unopened flower buds, 13:55 PST).

ADULT RESOURCES: *Eriogonum vimineum* (Polygonaceae); *Cryptantha* sp. (Boraginaceae).

Philotiella speciosa speciosa (H. Edwards).

Two specimens are known from Clark County. One bears no date on its label but was apparently taken on 14 April 1969 (1969 summ., see introduction above;

Shields, 1974, reports this as a May specimen) and the other was taken in June. The genus *Philotiella* was recently proposed by Mattoni (1977).

SPECIMENS EXAMINED: (2) AC, no date (1 m, NSM); Willow Spring, 17 June 78 (1 m, *ex* DM).

ADDITIONAL RECORDS: None.

Glaucopsyche lygdamus (Doubleday) ssp.

Small numbers of this species fly from early April to mid May in the higher desert between Goodsprings and the Pahrump Road in the Cottonwood Pass area of the southern Spring Range. There is also one record for the McCullough Mountains. It appears to belong to the unnamed eastern Mojave Desert population that is known from several desert ranges in California (Emmel and Emmel 1973).

SPECIMENS EXAMINED: (113) MM, 12 Apr. 69 (1 m, NSM); CP, 0.6-1.8 mi. S. Pahrump Rd., 16 Apr. 77 (1 m), 16 Apr. 79 (65 m, 5 f), 22 Apr. 78 (5 m, 3 f), 29 Apr. 8 (7 m, 2 f), 29 Apr. 79 (14 m, 7 f), 2 May 78 (2 m), 11 May 78 (1 f).

ADDITIONAL RECORDS: CP and RC, 7 Apr. 74 (REW); 1 mi. N. CP, 12 Apr. 76 (JB); CP Road, 0.6 mi. S. Pahrump Rd., 20 Apr. 77 (s).

LARVAL FOODPLANTS: *Astragalus lentiginosus* Dougl. var. *fremontii* (A. Gray) S. Wats. (Fabaceae): CP Rd., 1.5 mi. S. Pahrump Rd., 22 Apr. 78 (abdominal probing among flowers).

ADULT RESOURCES: *Dichelostemma pulchellum* (Amaryllidaceae); *Arabis* sp. (Brassicaceae); *Salvia dorrii* (Lamiaceae); *Astragalus lentiginosus* (Fabaceae).

Glaucopsyche lygdamus oro Scudder.

A few records from Kyle Canyon from mid June to late July indicate the presence of a small colony of this taxon in the Spring Range. It is associated with *Lupinus* and seems best placed in the Rocky Mountain-Great Basin race *oro*.

SPECIMENS EXAMINED: (4) above Cathedral Rock Campground, 8000′, 17 June 77 (1 m, 1 f); KC Ski Run, 2 July 78 (1 f), 23 July 78 (1 m).

ADDITIONAL RECORDS: None.

Celastrina argiolus cinerea (Edwards).

Common to locally abundant at elevations between 3600′ and 9500′. Records extend from mid March to late October. Early spring records especially are from the more mesic lower canyons with the first high elevation records in late April.

Early spring specimens tend to be smaller than those from later broods. Spring females have relatively narrow black borders above; summer females are heavily bordered with black, a form to which the name "arizonensis" has been applied.

SPECIMENS EXAMINED: (376) Many records from the Spring Range from 19 Mar. (72, Calico Basin, s) to 24 Oct. (65, Calico Basin, 1 m). There are a few records for the Virgin Mts. and one for the Newberry Mts. (GC, 20 Sept. 78, 1 m).

LARVAL FOODPLANTS: *Petrophytum caespitosum* (Nutt.) Rybd. (Rosaceae): Deer Creek, 25 June 68 (ovip. on flower buds, JFE, OS). *Peraphyllum ramosissimum* Nutt. (Rosaceae): RD Summit Rd., 1.5 mi. E. Lovell Wash, 24 April 77 (ovip. on flower buds).

ADULT RESOURCES: *Eriogonum plumatella, Eriogonum umbellatum, Eriogonum wrightii* (Polygonaceae); *Arctostaphylos pungens* (Ericaceae); *Apocynum androsaemifolium* (Apocynaceae); *Sarcostemma cynachoides* (Asclepiadaceae); *Eriodictyon angustifolium* (Hydrophyllaceae); *Potentilla propinqua* (Rosaceae); *Lupinus* sp. *Melilotus albus* (Fabaceae); *Acer glabrum* (Aceraceae); *Rhus trilobata* (Anacardiaceae); *Viguiera multiflora, Chrysothamnus* sp., *Senecio douglasii, Tetradymia canescens, Cirsium* sp. (Asteraceae).

Family Libytheidae

Libytheana bachmanii larvata (Strecker).

Usually uncommon to rare, but abundant in some years to 7600′. It occurs in most habitats but is most common along desert washes where *Chrysothamnus* is flowering. All except three records are from late August to mid December and probably represent migrants. The May and June records may be of individuals raised locally on *Celtis reticulata* which occurs rarely in the Red Rock area and in the Virgin Mountains. This remains to be documented.

SPECIMENS EXAMINED: (104) GC, 14 Sept. 77 (1 m), 4 Oct. 77 (1 f), 12 Oct. 77 (2 f), 25 Oct. 77 (7 m, 1 f), 3 Nov. 77 (2 m, 4 f), 11 Dec. 77 (2 m, 1 f); Bowman's Reservoir, 17 Sept. 77 (1 m); LO, 28 Sept. 66 (3, NSM), 16 Oct. 77 (1 f); Las Vegas, 3 Oct. 77 (1 m, UNLV); 2.9 mi. W. Searchlight, 4 Oct. 77 (1 m, 1 f); 1.8 mi. E. Blue Diamond, 11 Oct. 77 (1 m), 22 Oct. 77 (6 m, 1 f), 2 Nov. 77 (2 m, 1 f); WC, 14 Oct. 77 (1 f); KC Ski Run, 15 Oct. 77 (1 m); Whitney Mesa, 21 Oct. 77 (1 m, 4 f); Pahrump Rd., 3 mi. W. Blue Diamond turnoff, 22 Oct. 77 (14 m, 9 f); 0.6 mi. W. Blue Diamond, 22 Oct. 77 (1 f); Newberry Mts., 23 Oct. 70 (17, NSM); 2 mi. W. Searchlight, 25 Oct. 77 (3, NSM); Cold Creek Ranger Station, 26 Oct. 77 (3 m); WC, 26 Oct. 77 (1 m, 1 f); Tule Springs, 4 Nov. 77 (2 m); CN, 12 Nov. 77 (1 m, 1 f); 1 mi. W. MS, 16 Nov. 77 (1 f); KC, 20 mi. W. U.S. 95, 16 Nov. 77 (1 f); RD, 25 Nov. 77 (1 f, UNLV); PV, 28 Nov. 77 (1 f).

ADDITIONAL RECORDS: GC, 23 Mar. 78 (s); Willow Springs, 10 May 66 (JFL); MS, 30 June 63 (KR); Potosi Mt. Rd., 23 Aug. 75 (JB); CN, 1 Sept. 63 (KR); 14 Oct. 77, 26 Oct. 77, 4 Nov. 77 (s); 15.9 mi. W. Searchlight, 4 Oct. 77 (s); Las Vegas, 6 Oct. 70 (JFL); LO, 7 Oct. 64 (PJH); KC, 9.3 mi. W. U.S. 95, 15 Oct. 77 (s); jct. U.S. 93 and I-15, 23 Oct. 77, 5 Nov. 77 (s); Echo Canyon, 24 Oct. 77 (s); 0.2 mi. E. Boulder City, 25 Oct. 77 (s); WC, 26 Oct. 77 (s); Tule Springs, 1 Nov. 77, 12 Nov. 77, 12 Dec. 77 (s); 1.0 mi. W. MS, 1 Nov. 77 (s); UNLV campus, 1 Nov. 77 (s); 0.6 mi. W. Blue Diamond, 1 Nov. 77 (s); RR, 3 Nov. 77 (s); 0.5 mi. E. Boulder City, 3 Nov. 77 (s); 1.8 mi. E. Blue Diamond, 16 Nov. 77 (s).

ADULT RESOURCES: *Eriogonum* sp. (Polygonaceae); *Melilotus albus* (Fabaceae); *Chrysothamnus* sp., *Baccharis* sp., *Senecio douglasii, Cirsium* sp. (Asteraceae).

Family Nymphalidae

Asterocampa celtis montis (Edwards).

A small population of this taxon occurs in association with *Celtis reticulata* in the Virgin Mountains. There are no other records for Nevada.

SPECIMENS EXAMINED: None.

ADDITIONAL RECORDS: 0.4 mi. N. Nay (Whitney on maps) Ranch, 11 Sept. 78 (KR), 11 Oct. 78 (s).

Limenitis archippus obsoleta Edwards.

Local in Moapa Valley in close association with stands of *Populus* and/or *Salix*. It flies in at least 2 broods from early June to late October; an early brood is suggested by a specimen from Beaver Dam, Mohave Co., Arizona, on 7 April 1963 (1 m). The June brood appears to be the most numerous.

SPECIMENS EXAMINED: (53) Hidden Valley, 7 June 77 (1 m), 27 June 77 (5 m), 12 July 77 (1 m), 9 Aug. 77 (1 m); Bowman's Reservoir, 7 June 77 (1 m), 15 June 77 (7 m, 3 f), 16 June 77 (1 m, NSM), 27 June 77 (4 m, 1 f), 4 July 77 (3 m), 30 July 77 (2 m), 23 Aug. 77 (1 m), 9 Oct. 77 (1 m); LO, 15 June 77 (1 m), 4 July 77 (1 m), 23

Aug. 77 (2 m), 9 Sept. 79 (1 m, 2 f), 27 Sept. 78 (3 m, 1 f), 9 Oct. 77 (2 m, 1 f), 16 Oct. 77 (1 m, 1 f), 21 Oct. 79 (1 m); OV, 16 June 77 (2 m, NSM), 10 Oct. 64 (2 f, NSM).

ADDITIONAL RECORDS: LO, 27 June 77, 9 Aug. 77 (s); Hidden Valley, 4 July 77, 30 July 77 (s); Bowman's Reservoir, 9 Aug. 77, 4 Sept. 77, 29 Sept. 77 (s); OV, 27 Sept. 78 (s), 1 Oct. 68 (1968 summ.).

Limenitis weidemeyerii angustifascia (Barnes & McDunnough).

A population assigned to this taxon flies in the Virgin Mountains in May and June. This material shows no intermediacy with *nevadae*. It is large with the more rounded wings of the Arizona race but has slightly wider median white bands. In this feature it is slightly intermediate towards *L. w. latifascia* Perkins & Perkins. Only one of the nine specimens examined has a trace of white in the cell.

SPECIMENS EXAMINED: (9) CC, 4000-6000', 29 May 78 (1 m), 7 June 78 (4 m), 26 June 78 (4 m).

ADDITIONAL RECORDS: CC, 20 May 79 (s); Virgin Mts., 7200', 30 June 66 (JFL).

Limenitis weidemeyerii nevadae (Barnes & Benjamin).

This distinctive taxon occurs in the Spring Range from 4400' in mesic canyons to about 8400'; it is most common in Kyle Canyon (above 6500') and in the Cold-Willow creeks area. There are also records of this race from the Sheep Range. The single brood flies from late May to late August with a peak in early July.

SPECIMENS EXAMINED: (183) Many records from 22 May (78, Pine Creek, 1 m) to 22 Aug. (77, KC Ski Run, 1 f).

ADULT RESOURCES: *Clematis ligusticifolia* (Ranunculaceae); *Eriodictyon angustifolium* (Hydrophyllaceae); *Marrubium vulgare* (Lamiaceae); *Cirsium* sp. (Asteraceae).

Adelpha bredowii eulalia (Doubleday).

Fairly common in certain low, mesic canyons and at high elevations in the vicinity of oaks. It occasionally strays as far as Las Vegas. The flight period at low elevations is from mid April to mid July and early September to early November. At high elevations, it flies from late May to early October. At least two broods are involved. The Spring Range population apparently represents the westernmost extreme of this subspecies' range.

SPECIMENS EXAMINED: (95) RD Springs, 14 Apr. 64 (1 m); Lost Creek, 3 May 77 (1 m, NSM), 2 June 77 (3 m, NSM); CC, 12 May 77 (1 m, NSM), 17 May 78 (1 m), 20 May 78 (1 m), 20 May 79 (1 m), 29 May 78 (6 m), 7 June 78 (4 m), 26 June 78 (2 m, 1 f), 28 Sept. 74 (4 m, 5 f, NSM), 11 Oct. 78 (1 m, 1 f); Pine Creek, 22 May 78 (3 m), 2 June 77 (1 m, NSM), 1 Sept. 75 (1 f, NSM), 12 Sept. 75 (1 f, NSM), 19 Sept. 77 (1 m, 1 f), UNLV), 24 Sept. 73 (2, UNLV), 29 Sept. 71 (1, UNLV), 5 Oct. 77 (1 m, 1 f); Virgin Mts., 30 May 74 (2 f, NSM), 7 Oct. 73 (1 m, 1 f, NSM); RD Summit Rd., 1.5-2.1 mi. E. Lovell Wash, 2 June 77 (1 f), 22 June 77 (1 m, 1 f); Willow Spring, 2 June 77 (2 m, NSM); WC, 22 June 68 (1 f), 13 Oct. 78 (1 m); Deer Creek Rd., 2.8 mi. N. KC, 26 June 79 (1 m); KC, 20 mi. W. U.S. 95, 28 June 78 (1 m), 5 July 78 (1 f), 25 Aug. 78 (2 m), 26 Sept. 77 (1 m); KC Campground, 24 June 79 (2 m, 1 f), 30 June 77 (1 f, NSM); Charleston Park, 30 June 77 (1 m, 2 f, NSM); KC Ski Run, 20 June 79 (2 m), 2 July 78 (1 f); KC, 7500', 15 July 74 (2 m, 1 f); Clark Co., 9 Sept. 73 (1, UNLV), 9 Sept. 74 (1, UNLV), 12 Sept. 76 (1, UNLV), 24 Sept. 73 (3, UNLV), 29 Sept. 71 (1, UNLV), 30 Sept. 76 (1, UNLV), 13 Oct. 74 (1, UNLV), 15 Oct. 74 (1, UNLV); KC, 11 Sept. 74 (2 f, NSM); RD, 23 Sept. 77 (1 m, UNLV), 15 Oct. 73 (1, UNLV);

Las Vegas, 24 Sept. 74 (1, UNLV), Oct. 74 (1, UNLV), 21 Oct. 71 (1, UNLV), 10 Nov. 76 (1, UNLV); Lovell Canyon, 25 Sept. 75 (1 m, NSM).

ADDITIONAL RECORDS: Many additional records from locations and within the dates cited above. Additional collection sites are: MS, LC, Camp Bonanza, Arden Springs, Ash Springs and Oak Creek Canyon.

LARVAL FOODPLANTS: *Quercus gambelii* Nutt. (Fagaceae): RD Summit Rd., 22 June 77 (ovip.).

ADULT RESOURCES: *Eriodictyon angustifolium* (Hydrophyllaceae); *Chrysothamnus* sp., *Cirsium* sp. (Asteraceae).

Vanessa atalanta rubria (Fruhstorfer).

Fairly common locally in fall during some years but rare at other times of the year. There are a few records of mostly single individuals from March to August and a large brood from late September to early November. The habitat of *V. atalanta* is generally adjacent to riparian areas although it is occasionally found away from these situations.

SPECIMENS EXAMINED: (49) CC, 10 May 78 (1 m); WC, 5 June 79 (1 f), 22 June 78 (2 m), 14 Oct. 77 (1 m, 1 f), 26 Oct. 77 (1 f); WC, 22 June 78 (1 f), 14 Oct. 77 (5 m, 6 f), 26 Oct. 77 (2 m, 3 f); Lovell Wash, 4475′, 17 June 62 (1 m); Clark Co., 15 July 74 (1, UNLV); Deer Creek, 21 Aug. 71 (1, UNLV); Lovell Wash, 25 Sept. 75 (1 f, NSM); KC, 20 mi. W. U.S. 95, 27 Sept. 78 (2 f); LO, 27 Sept. 78 (2 f); KC, 3998′, 9 Oct. 66 (1 f); KC, 6940′, 9 Oct. 66 (3 f); Tule Springs, 13 Oct. 77 (7, CSL), 14 Oct. 77 (1 f), 4 Nov. 77 (2 m); KC Ski Run, 13 Oct. 78 (1 m), 15 Oct. 77 (1 m); Echo Canyon, 24 Oct. 77 (1 m).

ADDITIONAL RECORDS: 9 mi. W. Davis Dam, 25 Mar. 79 (s); XM, 12 Apr. 78 (s); Hidden Valley, 13 Apr. 78 (s); White Rock Spring, 21 Apr. 79 (2); CP Rd., 1.5 78 (s); Hidden Valley, 13 Apr. 78 (s); White Rock Spring, 21 Apr. 79 (s); CP Rd., 1.5 mi. S. Pahrump Rd., 29 Apr. 79 (s); Lovell Wash, 5375′, 17 June 62 (s); WC, 11 June 79, 22 June 78, 1 July 77, 20 July 77 (s); KC Ski Run, 20 June 79, 2 July 78, 8 Oct. 77 (s); Lost Creek, 23 June 78 (s); LC ballfield, 29 July 77 (s); CN, 14 Oct. 77, 4 Nov. 77 (s); Echo Canyon, 15 Oct. 77 (s); KC Campground, 15 Oct. 77, 24 Oct. 77 (s); Tule Springs, 1 Nov. 77, 29 Nov. 77 (s).

ADULT RESOURCES: *Eriodictyon angustifolium* (Hydrophyllaceae); *Amsinckia tessellata* (Boraginaceae); *Marrubium vulgare* (Lamiaceae); *Melilotus albus* (Fabaceae); aenactis sp. *Haplopappus* sp., *Chrysothamnus* sp., *Baccharis* sp. (Asteraceae).

Vanessa virginiensis (Drury).

Rare, occurring mostly at high elevations but also occasionally in desert washes and agricultural areas. It is apparently more common in some years than in others. It flies in 2 broods from mid June to early August and mid September to early November.

SPECIMENS EXAMINED: (19) Cold Creek Ranger Station, 13 June 77 (2 f); Potosi Mt. Rd. at Pahrump Rd., 14 June 77 (1 f); Overton, 15 June 77 (1 f); LC ballfield, 23 June 77 (1 m), 7 July 77 (1 m, NSM; 1 m); CC, 26 June 78 (1 m); KC, 20 mi. W. U.S. 95, 28 June 77 (1 m); ridge above KC, 11,200′, 19 July 78 (1 m, 1 f); WC, 20 July 77 (1 m), 23 Sept. 77 (1 m); CN, 15 Sept. 64 (1 m, NSM); Lovell Canyon, 6000′, 25 Sept. 75 (1 f, NSM); KC Ski Run, 8 Oct. 77 (1 m), 15 Oct. 77 (1 m); GC, 25 Oct. 77 (1 f); Tule Springs, 4 Nov. 77 (1 m).

ADDITIONAL RECORDS: Willow Creek, 17 June 77, 1 July 77 (s); KC Ski Run, 26 June 79, 2 July 78, 18 July 79 (s); GC, 21 July 78 (s); WC, 28 July 77, 14 Oct. 77, 26 Oct. 77 (s); Charleston Mts., 6 Aug. 61 (RES); 1.8 mi. E. Blue Diamond, 22 Oct. 77 (s).

ADULT RESOURCES: *Clematis ligusticifolia* (Ranunculaceae); *Erysimum asperum* (Brassicaceae); *Eriodictyon angustifolium* (Hydrophyllaceae); *Lupinus* sp., *Medicago sativa, Melilotus albus* (Fabaceae); *Viguiera deltoidea, Encelia farinosa, Chrysothamnus* sp., *Senecio douglasii, Tetradymia canescens, Cirsium* sp., *Taraxacum officinale* (Asteraceae).

Vanessa cardui (Linneaus).

Common to abundant in nearly all habitats. Low elevation records are for every month with desert records primarily in spring and fall. High elevation records are from early April to mid November. A large northward migration from 4 to 24 March 1968 with scattered individuals still moving into mid April (similar movements were seen at this time in Sonora, Mexico, and southern California, 1968 summ.). Large numbers in April 1973 and June and July 1965 (see also Emmel and Wobus 1966) showed no migratory tendencies and probably reflected favorable reproduction. The 1973 numbers were during one of the best local spring blooms of annuals on record; 1973 was a year of enormous numbers of the butterfly in California north to the Oregon border (Shaprio 1974). Several dwarfs were obtained in June and July 1965. Smaller scale movements also occur in other years (*e.g.*, 1978) which may go unnoticed.

SPECIMENS EXAMINED: (202) Records are from every month and for nearly all locations in Clark County to the top of Charleston Peak.

LARVAL FOODPLANTS: *Sphaeralcea ambigua* Gray (Malvaceae): Las Vegas, several records (ovip., larvae). *Althaea rosea* (L.) Cav. (Malvaceae): Las Vegas, several records (ovip., larvae). *Cirsium neomexicanum* A. Gray (Asteraceae): 2 mi. N. RC, 5 Apr. 78 (ovip., 2x, upper leaf surface, 10:10 PST).

ADULT RESOURCES: *Clematis ligusticifolia* (Ranunculaceae); *Tamarix pentandra* (Tamaricaceae); *Erysimum asperum* (Brassicaceae); *Eriogonum fasciculatum, Eriogonum heermannii, Eriogonum microthecum, Eriogonum* sp. (Polygonaceae); *Arctostaphylos pungens* (Ericaceae); *Menodora spinescens* (Oleaceae); *Apocynum androsaemifolium* (Apocynaceae); *Phacelia vallis-mortae, Eriodictyon angustifolium* (Hydrophyllaceae); *Sarcostemma hirtellum* (Asclepiadaceae); *Heliotropium curassavicum, Amsinckia tessellata* (Boraginaceae); *Mimulus guttatus* (Scrophulariaceae) *Verbena gooddingii* (Verbenaceae); *Marrubium vulgare* (Lamiaceae); *Medicago sativa, Melilotus albus, Psorothamnus fremontii* (Fabaceae); *Rhus trilobata* (Anacardiaceae); *Lomatium parryi, Angelica scabrida* (Apiaceae); *Viguiera deltoidea, Helianthus annuus, Encelia farinosa, Bebbia juncea, Psilostrophe cooperi, Baileya multiradiata, Chaenactis fremontii, Pectis papposa, Haplopappus* sp., *Chrysothamnus* sp., *Baccharis* sp., *Senecio douglasii, Pluchea sericea, Cirsium* sp., *Taraxacum officinale* (Asteraceae).

Vanessa annabella (Field).

Common to abundant in nearly all habitats. Lowland records are from early February to mid December and high elevation records are from early April to mid November. Desert records are for spring and fall.

SPECIMENS EXAMINED: (149) Specimens were seen for all months except January, August and December but there are sight records for the latter two months.

LARVAL FOODPLANTS: *Sphaeralcea ambigua* Gray (Malvaceae); many records (larvae). *Althaea rosea* (L.) Cav. (Malvaceae): Las Vegas, several records (ovip., larvae).

ADULT RESOURCES: *Tamarix pentandra* (Tamaricaceae); *Lepidium fremontii, Erysimum asperum* (Brassicaceae); *Eriogonum fasciculatum* (Polygonaceae); *Abronia villosa* (Nyctaginaceae); *Apocynum androsaemifolium* (Apocynaceae); *Phacelia fremontii, Eriodictyon angustifolium* (Hydrophyllaceae); *Heliotropium curassavicum* (Boraginaceae); *Marrubium vulgare* (Lamiaceae); *Ribes aureum* (Saxifragaceae); *Medicago sativa, Melilotus albus* (Fabaceae); *Helianthus annuus, Encelia farinosa, Bebbia juncea, Baileya multiradiata, Chaenactis fremontii, Solidago spectabilis, Chrysothamnus* sp., *Baccharis* sp., *Cirsium* sp., *Taraxacum officinale* (Asteraceae).

Precis coenia (Huebner).

Common in agricultural areas and relatively rare away from these occurring occasionally in desert washes, at springs and at high elevations. The flight period is from mid April to mid November. Most specimens are from agricultural areas from late August to mid November. Wild populations are irregular and suggest that the species is maintained in these areas by repeated immigrations.

SPECIMENS EXAMINED: (85) CC, 19 Apr. 75 (1 m, NSM), 18 May 78 (1 m), 26 June 78 (1 m); XM, 6 May 79 (1 m), 21 July 78 (1 m); WC, 22 June 78 (1 f), 13 Oct. 78 (1 m, 1 f); Cold Creek Ranger Station, 22 June 78 (1 m), 26 Oct. 77 (1 m); KC Ski Run, 24 June 79 (1 f); Cold Creek, 20 July 78 (1 m); GC, 21 Aug. 78 (1 m); Bowman's Reservoir, 23 Aug. 77 (1 m), 29 Sept. 77 (1 m); LO, 23 Aug. 77 (1 m), 4 Sept. 77 (1 m), 17 Sept. 77 (1 m), 28 Sept. 67 (1 m, 2 f, NSM), 28 Sept. 68 (1 m, NSM), 29 Sept. 77 (1 m), 9 Oct. 77 (3 m, 3 f), 16 Oct. 77 (1 m); Clark Co., Sept. 73 (1, UNLV); OV, 4 Sept. 66 (3 m), 15 Sept. 63 (2 m, 1 f, NSM), 25 Sept. 66 (3 m), 27 Sept. 78 (1 m, NSM), 29 Sept. 66 (1 m, 1 f, NSM), 23 Oct. 77 (9 m, 4 f), 5 Nov. 77 (5 m, 6 f), 11 Nov. 77 (9 m, 2 f); 1 mi. W. MS, 30 Sept. 79 (3 m, 1 f); Hidden Valley, 9 Oct. 77 (1 m); Las Vegas, 12 Oct. 70 (1, UNLV); 1.8 mi. E. Blue Diamond, 22 Oct. 77 (1 f).

ADDITIONAL RECORDS: Other records for span of dates above. Additional locations are CP Rd., Pine Creek, RC area, Sawmill Canyon, RR and Tule Springs.

ADULT RESOURCES: *Medicago sativa* (Fabaceae); *Baccharis* sp., *Tetradymia axillaris, Tetradymia canescens, Cirsium* sp. (Asteraceae).

Nymphalis californica (Boisduval).

Scattered records exist for this species above 6700' in the Spring and Sheep ranges. There is also one record for the Virgin Mts. In most years it is rare or absent but it was reported as "very abundant" in 1950 (FWP).

SPECIMENS EXAMINED: (6) CC, 5 June 79 (1, CSL); KC, 12 June 66 (1 m); Clark Canyon, 8000', 10 July 75 (1 f, NSM); Little Falls, 8000', 31 July 62 (2, JFL); KC, 78000', 11 Oct. 71 (1, JFL).

ADDITIONAL RECORDS: WC, 22 June 78 (s); Hidden Forest, 23 June 61 (KR); Little Falls, 29 June 63 (KR); KC, 6700-7500', 30 June 50 (FWP); KC Ski Run, 2 July 78 (s); Charleston Mts., 10-12 Aug. 63 (JFE).

ADULT RESOURCES: *Eriodictyon angustifolium* (Hydrophyllaceae).

Nymphalis milberti furcillata (Say).

Rare in Kyle Canyon and the Cold-Willow creeks area and usually not far from its foodplant *Urtica holsericea* which grows in small patches at these localities. Records extend from late April to early July, probably reflecting a single brood emerging in late June and overwintering.

SPECIMENS EXAMINED: (3) WC, 27 Apr. 77 (1 m; 1, CSL), 4 July 62 (1 m).

ADDITIONAL RECORDS: Little Falls, 15 May 72 (JFL); WC, 22 June 68, 22 June 78 (s); Charleston Peak, 24 June 68 (JFE, OS).

LARVAL FOODPLANTS: *Urtica holosericea* Nutt. (Urticaceae): KC, 23 May 63 (larvae, JL).

ADULT RESOURCES: *Eriodictyon angustifolium* (Hydrophyllaceae).

Nymphalis antiopa antiopa (Linnaeus).

Uncommon over a wide elevational range to at least 9000′. Low elevation records are generally from the vicinity of springs or towns. The flight period extends from early February to mid November. One brood is involved with overwintering adults occurring as late as 5 July and overlapping with the next generation which has been caught as early as 14 May.

SPECIMENS EXAMINED: (30) Willow Spring, 23 Mar. 77 (1 m, 1 f, NSM); Lost Creek, 23 Mar. 77 (1 f, NSM), 20 Apr. 77 (1 f, NSM); Pine Creek, 23 Mar. 77 (1 m, NSM), 9 Oct. 71 (1, UNLV); KC, 20 mi. W. U.S. 95, 26 Apr. 77 (2 m), 5 July 78 (1 m, 1 f), 6 July 77 (1 m); 2 mi. N. RC, 4 May 78 (1 f); Clark Co., 14 May 67 (1, UNLV), 9 Sept. 74 (1, UNLV); KC, 14 May 67 (1 f), 6 June 67 (1, UNLV); LO, 17 May 78 (1 f); WC, 25 May 78 (1 m), 22 June 78 (1 m), 23 June 62 (1 m), 1 July 77 (1 m), 14 Oct. 77 (1 f); WC, 30 May 66 (1 f), 23 June 62 (1 m); RD Summit Rd., 2.1 mi. E. Lovell Wash, 22 June 77 (1 m); KC Campground, 24 June 79 (1 m); KC, 3340′, 5 July 65 (1 m); Little Falls, 20 July 65 (1 m); Las Vegas, 18 Oct. 76 (1, UNLV); Tule Springs, 4 Nov. 77 (1 f).

ADDITIONAL RECORDS: Records for all months from 8 Feb. (70, Las Vegas, in desert area, s) to 18 Nov. (79, Las Vegas, s) mostly for locations cited above. There are also records for the Sheep, Newberry and Virgin mountains.

Polygonia satyrus satyrus (Edwards).

Less widespread than *P. zephyrus* reflecting the local distribution of its probable foodplant, *Urtica holosericea*. The 2 broods fly from June to August and in October. The latter brood overwinters and flies again in March and April. The overwintering brood is darker brown and more yellowish beneath than the summer brood.

SPECIMENS EXAMINED: (29) Lost Creek, 23 Mar. 77 (1 m, CSL); WC, 27 Apr. 77 (1 m, 1 f), 5 June 79 (1 m, 2 f), 11 June 79 (1 m, 1 f), 22 June 68 (1 m), 22 June 78 (2 f), 1 July 77 (4 m), 20 July 77 (2 m, 2 f), 20 July 78 (1 m), 8 Aug. 71 (1 f), 13 Oct. 78 (1 m); KC, 20 mi. W. U.S. 95, 14 June 77 (1 f); KC Campground, 24 June 79 (1 m); WC, 1 July 77 (1 m), 14 Oct. 77 (1 m), 26 Oct. 77 (2 m); Deer Creek, 21 Aug. 71 (1, UNLV).

ADDITIONAL RECORDS: WC, 13 June 77, 22 June 78 (s), 29 June 63 (KR), 28 July 77 (s); Little Falls, 22 June 62, 26 June 63, 4 July 72, 5 July 62 (JFL); KC, 9500′, 1 July 72 (JFL); Clark Canyon, 10 July 75 (CSL); Charleston Mts., 31 July 65 (RES); Mack's Canyon, 28 Aug. 75 (CSL).

ADULT RESOURCES: *Eriodictyon angustifolium* (Hydrophyllaceae); *Penstamon palmeri* (Scrophulariaceae); *Marrubium vulgare* (Lamiaceae); *Melilotus albus* (Fabaceae); *Salix lasiolepis* (Salicaceae); *Chrysothamnus* sp. (Asteraceae).

Polygonia zephyrus (Edwards).

Locally common above 6000′ to as high as 11,200′. It flies in 2 broods, the largest numbers appearing in September and October representing the overwintering population which again flies in March and April. A summer brood flies from late May to August. The latter consists of larger individuals which are more yellow-orange above and browner beneath than the fall brood.

SPECIMENS EXAMINED: (65) KC, 17.1-20.0 mi. W. U.S. 95, 22 Mar. 77 (2 m), 28 June 78 (1 m), 25 Aug. 78 (1 m), 26 Sept. 77 (1 m, 2 f), 27 Sept. 78 (4 m, 3 f), 3 Oct. 77 (1 f), 12 Oct. 77 (1 m); Willow Spring, 26 Mar. 78 (1 f, CSL); Deer Creek, 31 May 77 (1 m); WC, 22 June 78 (1 m); Deer Creek Rd., 2.8 mi. N. KC, 24 June 79 (1 m), 26 June 79 (1 f); KC Campground, 24 June 79 (1 m), 8 Oct. 77 (1 m); KC Ski Run, 26 June 79 (1 m), 10 July 79 (2 m), 12 July 78 (1 m), 20 July 65 (1 m), 27 Sept. 78 (4 m), 28 Sept. 77 (4 f), 8 Oct. 77 (2 m); KC, 8000-9000′, 5 July 65 (2 m, 1 f), 13 July 69 (1 m), 25 July 65 (1 f); LC, 8000-9000′, 5 July 76 (1 m, 1 f, DM), 29 July 77 (1 m); Little Falls, 13 July 65 (1 f), 20 July 65 (1 m, 1 f); ridge above KC, 11,200′, 15 July 79 (1 m), 19 July 78 (1 m, 3 f); Echo Canyon, 28 Sept. 77 (1 m, 2 f), 8 Oct. 77 (3 m), 23 Oct. 66 (1 m); KC, 9 Oct. 66 (3 m); RD, 15 Oct. 73 (1 f, UNLV).

ADDITIONAL RECORDS: KC Ski Run, 24 June 79, 18 July 79 (s); Little Falls, 29 June 63 (KR), 8 Aug. 62 (JFL); KC, 1 July 72 (JFL), 8 Aug. 74 (JAS), 26 Sept. 65 (PJH); Deer Creek Rd., 2.8 mi. N. KC, 10 July 79 (s); Cathedral Rock, 13 July 72 (DEA); Charleston Peak Trail, 11,200′, 14 July 77 (s); LC, 8 Aug. 74 (JAS), 17 Aug. 63 (JFL), 23 Sept. 75 (s); Charleston Mts., 10-12 Aug. 63 (JFE); Echo Canyon, 9 Oct. 66, 15 Oct. 77 (s).

LARVAL FOODPLANTS: *Ribes cereum* Dougl. (Saxifragaceae): KC, 31 Aug. 67 (larvae, Shields *et al.* 1969); ridge above KC, 11,200′, 19 July 78 (ovip., 2x, on main stem at base of branch, 12:00 PST; plant adjacent to snowbank, leaves unopened).

ADULT RESOURCES: *Chrysothamnus* sp. (Asteraceae).

Chlosyne palla vallismortis (Johnson).

Not common in Kyle Canyon between 6700′ and 8000′. Records are for mid May and mid June to mid July. The flight season appears to be very short in some years. I took specimens on 5 and 7 July 1977 but none were seen by me on 17 June or 15 July in the same area. Lawson did not see it on 30 June and Mullins took it on 2 July. In 1965, however, specimens were taken over a 5 week period.

We tentatively assign the Spring Range population to *vallismortis* of the Panamint Mountains of California. The populations are similar in their large size although that of the Spring Range is slightly redder in color.

SPECIMENS EXAMINED: (85) Charleston Mts., 14 May 34 (10 m, 1 f, LACM); WC, 11 June 79 (1 m); KC, 6800′, 13 June 65 (1 m); KC Campground, 20 June 79 (17 m), 24 June 79 (15 m, 1 f), 26 June 79 (9 m, 2 f), 5 July 77 (9 m), 7 July 77 (5 m, 1 f), 20 July 65 (1 m); 1 mi. N. KC on Deer Creek Rd., 2 July 77 (6 m, 2 f, DM); Deer Creek, 11 July 65 (1 m); KC, 7500′, 15 July 74 (1 m, 2 f).

ADDITIONAL RECORDS: KC, 6768′, 30 June 50 (FWP); KC, 6770′, 1 July 50 (Howe 1975); between KC and Deer Creek, 7000′, 1 July 50 (FWP); KC, 8000′, 5 July 65 (s).

ADULT RESOURCES: *Viguiera multiflora* (Asteraceae).

Chlosyne neumoegeni neumoegeni (Skinner).

Common to abundant, mostly in desert washes, to 5000′. The flight period involves a large spring brood from early March (one January and two February records) to mid May with a peak in mid April and an irregular and sometimes absent (depending on rainfall) fall brood from early September to early November. Some colonies may occasionally produce a small second spring brood (1978, Newberry Mountains).

SPECIMENS EXAMINED: (422) Specimens or other records are for the dates from 3 Mar. (63, RR, s) to 7 June (78, CC, s) and 3 Sept. (61, Blue Diamond, KR) to 2 Nov. (77, 1.8 mi. E. Blue Diamond, 2 f). There are records for 21 Jan. 64, 6 Feb. 77 and 8 Feb. 70.

LARVAL FOODPLANTS: *Acamptopappus shockleyi* Gray (Asteraceae): 0.5 mi. S. Red Spring, 27 Apr. 79 (ovip. on flower buds, 09:15 PST); 12 mi. N. I-15 on U.S. 93, 15 May 77 (larvae on disc flowers). *Macaeranthera tortifolia* (Gray) Cronq. & Keck (Asteraceae); XM, 22 Apr. 79 (ovip. lower surface of lower leaves near center of plant, 10:30 PST); 0.5 mi. S. Red Spring, 21 Apr. 79 (larvae); 9 mi. W. Davis Dam, 3 May 78 (small larvae on disc flowers); XM, 12 May 78 (larvae mostly on disc flowers, also feeding on ray flowers after disc consumed); 12 mi. N. I-15 on U.S. 93, 15 May 77 (larvae on disc flowers).

ADULT RESOURCES: *Eriogonum fasciculatum* (Polygonaceae); *Menodora spinescens* (Oleaceae); *Cryptantha* sp., *Amsinckia tessellata* (Boraginaceae); *Lycium andersonii* (Solanaceae); *Encelia farinosa, Bebbia juncea, Baileya multiradiata, Baileya pleniradiata, Perityle emoryi, Eriophyllum wallacei, Chaenactis fremontii, Pectis papposa, Haplopappus* sp., *Acamptopappus shockleyi, Dyssodia cooperi, Chrysothamnus* sp., *Baccharis* sp., *Senecio douglasii* (Asteraceae).

Chlosyne lacinia crocale (Edwards).

Common to abundant in agricultural areas of the Las Vegas and Moapa valleys; very rare elsewhere with records for Virgin Valley, Corn Creek and Grapevine Canyon. The flight period extends from mid April to late October involving 2-4 broods depending on availability of the larval foodplant, largely *Helianthus annuus*. The latter grows commonly along edges of fields and may be cut or burned at times depending on the particular farmer's practices.

All three forms occur in Clark County with the form "rufescens" predominating, comprising 70% of the population and forms "crocale" and "nigrescens" with 26% and 4%, respectively.

SPECIMENS EXAMINED: (342) Numerous records from Moapa and Las Vegas valleys between 13 Apr. (78) and 23 Oct. (77). Records away from here are Mesquite, 13 Apr. 78 (s), 18 Sept. 72 (1 f, NSM); Bunkerville, 17 May 78 (1 m, NSM); GC, 21 Aug. 78 (1 f), 27 Sept. 77 (s); CN, 7 Oct. 77 (1 m).

LARVAL FOODPLANTS: *Helianthus annuus* L. (Asteraceae): Hidden Valley, 23 Aug. 77, 29 Sept. 77 (many larvae). *Xanthium strumarium* L. (Asteraceae): MF, 13 Sept. 77 (many larvae).

ADULT RESOURCES: *Tamarix pentandra* (Tamaricaceae); *Polygonum lapathifolium* (Polygonaceae); *Convolvulus* sp. (Convolvulaceae); *Heliotropium curassavicum* (Boraginaceae); *Medicago sativa* (Fabaceae); *Viguiera deltoidea, Helianthus annuus, Baileya pleniradiata, Baileya multiradiata, Baccharis* sp., *Pluchea sericea* (Asteraceae).

Chlosyne californica (Wright).

Locally common in some years in the Newberry Mountains; rare elsewhere occurring as far north as Willow Creek in the Spring Range. It flies in 2 broods from mid March to early June and early September to late October. The timing and size of the second brood may depend on summer rainfall.

SPECIMENS EXAMINED: (167) GC, 23 Mar. 78 (2 m, NSM; 4 f), 8 Apr. 77 (1 m), 12 Apr. 78 (3 m, 1 f, NSM; 9 m, 3 f), 15 Apr. 78 (3 m, 5 f), 20 Apr. 78 (1 f, NSM; 1 m, 1 f), 3 May 78 (1 f), 5 May 77 (1 f, NSM; 2 m, 2 f), 12 May 78 (1 f), 1 June 78 (2 f, NSM), 26 Sept. 78 (1 m, 2 f, NSM; 1 m), 27 Sept. 77 (27 m, 22 f), 4 Oct. 77 (4 m, 6 f), 12 Oct. 77 (2 f), 25 Oct. 77 (1 f); MM, 12 Apr. 69 (2 m, NSM), 26 Sept. 68 (1 f, UNLV); XM, 15 Apr. 78 (1 m, 1 f), 22 Apr. 79 (10 m, 3 f), 3 May 78 (1 f), 6 May 79 (2 m, 5 f), 23 May 78 (1 m), 1 June 78 (2 m, NSM), 27 Sept. 77 (3 m, 1 f); 9 mi. W. Davis Dam, 15 Apr. 78 (1 f), 20 Apr. 78 (2 f, NSM), 12 May 78 (1 m), 23 May 78 (1 m); Sacatone Wash, 15 Apr. 78 (1 m, 2 f); 1 mi. W. Nipton Pass, 4 May 78 (2 m); Bridge Canyon, 12 May 78 (1 f), 26 Sept. 78 (1 m, NSM); 2 mi. N. RC, 27 May 78 (2 f); CP Rd., 1.5 mi. S. Pahrump Rd., 28 May 78 (1 f); Crescent Peak, 21 Sept. 72 (3 m, 5 f, NSM); 2.8 mi. E. Nelson, 27 Sept. 77 (1 m), 25 Oct. 77 (1 f).

ADDITIONAL RECORDS: XM, 18 Mar. 72 (JFL), 12 Apr. 78, 20 Apr. 78, 5 May 77, 12 May 78, 4 Oct. 77 (s); 9 mi. W. Davis Dam, 12 Apr. 78, 22 Apr. 79, 3 May 78 (s); Bridge Canyon, 3 May 78 (s); CP Rd., 0.6 mi. S. Pahrump Rd., 19 May 78 (s); WC, 6 June 78 (s); Ash Spring, 30 June 69 (JFE, OS); Blue Diamond, 3 Sept. 61 (KR); 0.5 mi. E. Boulder City, 3 Oct. 77 (s).

LARVAL FOODPLANTS: *Viguiera deltoidea* Gray (Asteraceae): GC, 14 Sept. 77 (larvae, skeletonizing leaves).

ADULT RESOURCES: *Eriogonum fasciculatum* (Polygonaceae); *Amsinckia tessellata* (Boraginaceae); *Salvia* sp. (Lamiaceae); *Viguiera deltoidea, Encelia farinosa, Bebbia juncea, Perityle emoryi, Eriophyllum wallacei, Chaenactis fremontii, Haplopappus* sp., *Baccharis* sp., *Senecio douglasii, Pluchea sericea* (Asteraceae).

Phyciodes texana texana (Edwards).

The only Nevada records are for Grapevine Canyon in April and Cabin Canyon in May.

SPECIMENS EXAMINED: (2) GC, 12 Apr. 78 (1 m), 20 Apr. 78 (1 m).

ADDITIONAL RECORDS: GC, 15 Apr. 78 (s); CC, 20 May 79 (s).

Phyciodes tharos (Drury) ssp.

The only Nevada record is from Corn Creek. They belong to the unnamed southwestern United States-northwestern Mexico population. This taxon was called *distincta* by Bauer *in* Howe (1975). No type was, however, designated. Thus *P. tharos distincta* is a *nomen nudum*. The specimens are identical with material from Imperial Co., California.

SPECIMENS EXAMINED: (2) CN, 9 Sept. 64 (2 m, NSM).

ADDITIONAL RECORDS: None.

Phyciodes phaon (Edwards).

Very rare with records from mid September to early November for the Las Vegas area.

SPECIMENS EXAMINED: (9) Las Vegas, Sept. 75 (1 m, *ex* UNLV), 16 Sept. 77 (1, UNLV), Oct. 75 (1 m, *ex* UNLV), 8 Oct. 77 (1 f, UNLV), 13 Oct. 76 (1 f), 13 Oct. 77 (1 m, UNLV), 15 Oct. 78 (1 f), 7 Nov. 77 (1 f, UNLV); Clark Co., 1 Oct. 76 (1 f, *ex* UNLV).

ADDITIONAL RECORDS: None.

Phyciodes pallida barnesi Skinner.

A single specimen for this taxon exists for Clark County. Populations are known for adjacent Lincoln Co., Nevada,(GTA) and Washington Co., Utah (Tidwell and Callaghan 1972).

SPECIMENS EXAMINED: (1) CN, 15 July 64 (1 m, NSM).

ADDITIONAL RECORDS: None.

Phyciodes mylitta mylitta (Edwards).

A single specimen from Kyle Canyon referrable to the nominate race was examined. Another record from the same area is the only other one known from the county. These may represent a small breeding colony as its known foodplant, *Cirsium*, is quite common here.

SPECIMENS EXAMINED: (1) Charleston Park, 30 June 77 (1 f, CSL).

ADDITIONAL RECORDS: Charleston Park, 29 June 63 (KR).

Thessalia leanira alma (Strecker).

Uncommon locally at middle elevations between 3400′ and 6100′ especially in the southern portion of the Spring Range in the Cottonwood Pass area. Records extend from mid April to mid May and a fresh individual seen on 13 June.

SPECIMENS EXAMINED: (184) Blue Diamond, 12 Apr. 69 (1 m, NSM); CP Rd., 0.6-1.8 mi. S. Pahrump Rd., 16 Apr. 77 (3 m, 2 f), 16 Apr. 79 (1 m), 20 Apr. 77 (4 m), 22 Apr. 78 (6 m), 29 Apr. 78 (1 m), 29 Apr. 79 (26 m, 13 f), 2 May 77 (2 m), 2 May 78 (7 m, 2 f), 3 May 78 (3 m, 1 f, NSM), 6 May 78 (1 m, NSM), 11 May 78 (4 m, 2 f), 13 May 79 (4 m), 19 May 78 (3 m); 3 mi. W. Blue Diamond, 20 Apr. 77 (2 m, 5 f); 0.5 mi. S. Red Spring, 21 Apr. 79 (17 m, 2 f), 29 Apr. 79 (30 m, 4 f), 2 mi. E. MS, 24 Apr. 77 (1 m, 1 f); WC, 27 Apr. 77 (1 m, NSM), 29 Apr. 77 (1 m, NSM); CC, 27 Apr. 78 (1 m), 10 May 78 (1 m); Pine Creek, 2 May 77 (1 m); KC, 6.6 mi. W. U.S. 95, 2 May 77 (1 f), 2 May 78 (4 m), 11 May 78 (3 m); 1 mi. W. WC, 8 May 78 (1 m), 25 May 78 (2 m); KC, 9.3 mi. W. U.S. 95, 13 May 78 (1 m); 0.5 mi. E. MS, 13 May 79 (12 m), 19 May 78 (3 m); 1.5 mi. E. MS, 13 May 79 (1 m); RC, 27 May 78 (2 m); Wilson Pass, *ex* larva emerged 21 Apr. 78 (1 f).

ADDITIONAL RECORDS: White Rock Spring, 2 May 78 (s); RC, 4 May 78, 27 May 78 (s); 2 mi. N. RC, 4 May 78, 27 May 78 (s), WC, 13 June 77 (s).

LARVAL FOODPLANTS: *Castilleja chromosa* A. Nels. (Scrophulariaceae): RD Canyon, 25-27 Mar. 75 (larvae, JB); Willow Spring, 29 Mar. 78 (larvae feeding on flowers and leaves); Wilson Pass, 29 Mar. 78 (larvae feeding on flowers).

ADULT RESOURCES: *Menodora spinescens* (Oleaceae); *Baileya multiradiata, Eriophyllum wallacei, Chaenactis fremontii, Acamptopappus shockleyi, Senecio douglasii, Senecio multilobatus* (Asteraceae).

Poladryas minuta arachne (Edwards).

Common very locally on the west slope of the Spring Range at elevations of 4500′ to 6000′. The flight periods of the 2 broods are late April to late June and early September to mid October.

Southern Nevada material with its two-toned orange ground color is clearly within the concept of *P. m. arachne*, especially like northern Arizona populations. In comparison with a series from Flagstaff, Coconino Co., Arizona, southern Nevada material differs in having slightly less black on the basal half of both wings above and below, the ground color of the primaries below is more even (less two-toned) and the light areas of the secondaries below are less creamy. In fact, these light areas are the whitest of all populations of *minuta* examined except those of southern Arizona, *P. m. gilensis* (Holland), to which southern Nevada specimens are comparable in this aspect. The use of the specific name *minuta* is based on the studies of Scott (1974).

SPECIMENS EXAMINED: (51) CP Rd., 0.6-1.8 mi. S. Pahrump Rd., 29 Apr. 78 (1 m), 2 May 78 (3 m), 3 May 78 (3 m, NSM), 11 May 78 (2 m), 13 May 79 (1 m), 28 May 78 (1 m); 0.5 mi. E. MS, 13 May 79 (12 m), 19 May 78 (3 m); CC, 20 May 78 (1 f); 5 June 79 (1 f, CSL); Trout Canyon Ranch, 14 June 77 (6 m), 18 Sept. 77 (1 m);

6.1 mi. N. Spring Mountain Youth Camp, rd. to Trout Canyon, 14 June 77 (1 m); RD Summit Rd., 1.5 mi. E. Lovell Wash, 22 June 77 (1 f); MS, 6 Sept. 69 (2 f, NSM); 1 mi. W. MS, 28 Sept. 78 (1 m), 1 Oct. 77 (9 m, 1 f), 11 Oct. 77 (1 f).

ADDITIONAL RECORDS: 1 mi. W. WC, 8 May 78 (s); 1:5 mi. E. MS, 13 May 79 (s).

ADULT RESOURCES: *Eriodictyon angustifolium* (Hydrophyllaceae); *Viguiera multiflora, Erigeron* sp. (Asteraceae).

Euphydryas chalcedona kingstonensis Emmel & Emmel.

One desert population of this species is known in the Newberry Mountains. It flies in a large spring brood from mid March to early June and a small brood depending on summer rains in September. Specimens are within the range of variation of southern California populations.

SPECIMENS EXAMINED: (269) GC, 8 Apr. 77 (1 f, CSL; 1 m, 1 f), 12 Apr. 78 (1 m, NSM), 15 Apr. 78 (2 m), 20 Apr. 78 (5 m, NSM; 12 m, 1 f), 3 May 78 (21 m, 2 f), 12 May 78 (10 m, 5 f), 23 May 78 (1 m), 1 June 78 (1 m, 1 f, NSM), 14 Sept. 77 (3 m, 5 f); XM, 12 Apr. 78 (6 m, NSM; 13 m), 15 Apr. 78 (4 m, 1 f), 20 Apr. 78 (12 m, 3 f), 22 Apr. 79 (35 m, 2 f), 3 May 78 (13 m, 3 f), 5 May 77 (1 m, CSL), 6 May 79 (49 m, 26 f), 12 May 78 (11 m, 13 f), 23 May 78 (4 m).

ADDITIONAL RECORDS: XM, 18 Mar. 72 (JFL), 1 June 78, 19 Aug. 79 (s); GC, 23 Mar. 78 (CSL, s), 27 Sept. 77 (s); Sacatone Wash, 15 Apr. 78 (s).

LARVAL FOODPLANTS: *Keckiella antirrhinoides* Benth. ssp. *microphyllus* (Gray) Keck (Scrophulariaceae): XM, 12 Apr. 78 (last instar larvae feeding on leaves).

ADULT RESOURCES: *Eriogonum fasciculatum* (Polygonaceae); *Amsonia tomentosa* (Apocynaceae); *Phacelia fremontii, Phacelia vallis-mortae,* (Hydrophyllaceae); *Amsinckia tessellata* (Boraginaceae); *Salvia* sp. (Lamiaceae); *Baileya multiradiata, Senecio douglasii* (Asteraceae).

Euphydryas anicia morandi Gunder.

This distinctive taxon is locally common in the Spring Range especially in the meadows on the ridge to Charleston Peak and above the ski area in Lee Canyon. Most records are for above 10,000′ although it is occasionally taken as low as 6800′. The flight period of the single brood is usually from late June to mid July; a number of early (1940 and before) collections, however, were made in early May to early June.

SPECIMENS EXAMINED: (168) Charleston Mts., 7 May 29 (1 f, LACM), 13 May 34 (1 m, LACM), 14 May 34 (17 m, 1 f, LACM), 19 May 34 (2 m, LACM); Mt. Charleston, 1 June 33 (4 m, LACM); KC Campground, 30 June 77 (1 m, CSL); LC above ski area, 2 July 77 (6 m, 1 f, DM), 5 July 76 (6 m, 6 f, NSM), 6 July 66 (8 m, 7 f, DM); Charleston Peak trail above KC, 10,400-11,300′, 14 July 77 (27 m, 5 f), 15 July 79 (43 m, 14 f), 19 July 78 (10 m, 8 f).

ADDITIONAL RECORDS: Mt. Charleston, 7 May 29 (DE), 10 May 36 (DE), 10 May 40 (DE), 26 June 36 (DE); trail to Charleston Peak, 10,800-11,500′, (TCE, OS); Mt. Charleston, 10,500-11,360′, (JFL); KC, 10,500-11,000′, 10-16 July 28 (type series, Gunder 1928).

ADULT RESOURCES: *Erysimum asperum* (Brassicaceae); *Taraxacum officinale* (Asteraceae).

Euphydryas anicia (Doubleday) ssp.

A population which does not seem to fit any described subspecies of *anicia* flies in the Virgin Mountains between 4000′ and 5000′ in April and May. Its relationships appear towards Rocky Mountain populations.

SPECIMENS EXAMINED: (17) CC, 8 Apr. 79 (1 m, 1 f), 13 Apr. 74 (1 m, NSM), 14 Apr. 77 (2 m, 1 f, CSL), 27 Apr. 78 (2 m), 10 May 78 (1 m), 18 May 78 (1 m), 20 May 78 (1 m), 20 May 79 (6 m).

ADDITIONAL RECORDS: None.

Speyeria zerene carolae (dos Passos & Grey).

This endemic is locally common on the east slope of the Spring Range from 6700′ to 10,800′, but mostly below 7500′ in Kyle Canyon. There is but one west slope record for the low elevation of 5000′ in Lovell Wash. The flight period for the single brood is from mid June to early September with a peak in mid to late July. Very late records are in late September and mid October.

SPECIMENS EXAMINED: (179) Numerous records with the earliest date on 17 June (66, LC and Deer Creek, s). Latest record is 11 Oct. (77, KC Campground, s). The only record away from the east slope is Lovell Wash, 5000′, 17 June 62 (s).

ADULT RESOURCES: *Erysimum asperum* (Brassicaceae); *Apocynum androsaemifolium* (Apocynaceae); *Rosa woodsii* (Rosaceae); *Lupinus* sp. (Fabaceae); *Angelica scabrida* (Apiaceae); *Chaenactis* sp., *Cirsium* sp. (Asteraceae).

Euptoieta claudia (Cramer).

Very rare with four known records for the county.

SPECIMENS EXAMINED: (3) Ash Springs, 3800′, 19 Mar. 72 (1, JFL); CN, 22 June 68 (2, JFL).

ADDITIONAL RECORDS: Sawmill Canyon, 1 July 69 (1969 summ.); 1 mi. N. CP, 23 Aug. 75 (JB).

Family Heliconiidae

Agraulis vanillae incarnata (Riley).

The only state records are a stray caught in the authors' yard in Las Vegas and two sight records.

SPECIMENS EXAMINED: (1) Las Vegas, 19 June 68 (1 f).

ADDITIONAL RECORDS: 0.5 mi. N. Red Spring, 29 Apr. 79 (s); XM, 6 May 79 (s).

Family Danaidae

Danaus plexippus plexippus (Linnaeus).

Not uncommon especially in mesic canyons, near springs and, after July, at the higher elevations. Records are for every month except January but it is most abundant from mid June to mid November. There are many Las Vegas records from August to November and a few desert records in early spring and fall. High elevation records are from early July to mid November. A concentration of about 40 individuals was at Tule Springs on 6 Sept. 75 and over 200 were seen in Pine Creek on 5 Oct. 77.

SPECIMENS EXAMINED: (124) Records from numerous locations throughout the county between 6 Feb. (77, 1.5 mi. S. Davis Dam, s) to 25 Dec. (65, CN, s).

ADULT RESOURCES: *Clematis ligusticifolia* (Ranunculaceae); *Stanleya pinnata* (Brassicaceae); *Sarcostemma hirtellum* (Asclepiadaceae); *Eriodictyon angustifolium* (Hydrophyllaceae); *Marrubium vulgare* (Lamiaceae); *Cowania mexicana* (Rosaceae); *Medicago sativa, Melilotus albus* (Fabaceae); *Angelica scabrida* (Apiaceae); *Viguiera deltoidea, Helianthus annuus, Solidago spectabilis, Chrysothamnus* sp., *Baccharis* sp., *Senecio douglasii, Cirsium* sp. (Asteraceae).

Danaus gilippus strigosus (Bates).

Locally common in certain low canyons (Pine Creek, Grapevine Canyon) but found in most areas of the county to at least 8500′. There are records for every month except March but most records are from mid June to early November.

SPECIMENS EXAMINED: (229) Numerous records through most of the year from many locations; desert records are few. High elevation records are from 25 May (78, WC, s) to 22 Aug. (77, KC Ski Run, s).

LARVAL FOODPLANTS: *Sarcostemma hirtellum* (Gray) R. Holm (Asclepiadaceae): GC, 20 Apr. 78 (ovip. on stems, 13:30 PST), 3 Aug. 77 (mature larva), 27 Sept. 77 (ovip. single eggs on stems between leaf bases, 10:40 PST, 11:00 PST). *Asclepias subulata* Dcne. in A. DC. (Asclepiadaceae): 9 mi. W. Davis Dam, 3 May 78 (ovip. beneath flower heads, 10:00 PST).

ADULT RESOURCES: *Clematis ligusticifolia* (Ranunculaceae); *Tamarix pentandra* (Tamaricaceae); *Eriogonum fasciculatum* (Polygonaceae); *Apocynum androsaemifolium* (Apocynaceae); *Sarcostemma hirtellum* (Asclepiadaceae); *Eriodictyon angustifolium* (Hydrophyllaceae); *Acacia greggii, Prosopis glandulosa, Prosopis pubescens, Melilotus albus* (Fabaceae); *Viguiera deltoidea, Helianthus annuus, Bebbia juncea, Solidago spectabilis, Chrysothamnus* sp., *Baccharis* sp., *Senecio douglasii, Tetradymia canescens, Pluchea sericea, Cirsium* sp. (Asteraceae).

Family Satyridae

Cyllopsis pertepida dorothea (Nabokov).

The population in the Virgin Mountains is the only known colony for the state except for one in Meadow Valley Wash in Lincoln Co. (1968 summ.). It flies in 2 broods from late May to late June and in September and October. The taxonomy follows Miller (1974).

SPECIMENS EXAMINED: (23) CC, 29 May 78 (3 m), 7 June 78 (2 f, NSM; 2 m), 8 June 78 (1 m, 1 f), 26 June 78 (5 m, 4 f), 12 Sept. 74 (2 m, NSM), 20 Sept. 72 (1 f, NSM), 11 Oct. 78 (2 m).

ADDITIONAL RECORDS: None.

ADULT RESOURCES: *Eriodictyon angustifolium* (Hydrophyllaceae); occasionally visit water.

Coenonympha california california Westwood.

A single specimen from the Spring Range is the only southern Nevada record.

SPECIMENS EXAMINED: (1) WC, 22 June 78 (1 m).

ADDITIONAL RECORDS: None.

ADULT RESOURCES: *Rorippa nasturtium-aquaticum* (Brassicaceae).

Coenonympha ochracea brenda Edwards.

Uncommon in the Spring Range above 6500′ but mostly above 7500′ in open areas. The single brood usually flies from mid June to early August although there are May records.

Spring Range material along with certain other Nevada material (White Pine, Nye, Lander counties) fall within the concept of Utah *brenda* although there are minor differences in pattern (see also Brown 1964).

SPECIMENS EXAMINED: (48) Charleston Mts., 12 May 34 (7 m, 5 f, LACM); KC, 8000′, 12 June 66 (1 m), 5 July 65 (4 m, 2 f); above Cathedral Rock Campground, 17 June 77 (3 m, 1 f); KC Campground, 22 June 78 (1 m); KC Ski Run, 24 June 79 (1 f), 5 July 77 (1 m); KC, 7680′, 27 June 65 (1 m); Clark Canyon, 2

July 75 (1 m, NSM); Deer Creek, 11 July 65 (2 m); Little Falls, 13 July 65 (1 m, 1 f); Charleston Peak trail, 10,900-11,300′, 14 July 77 (1 m, 1 f), 15 July 79 (1 m), 19 July 78 (4 m, 3 f); KC, 9000′, 25 July 65 (1 m), 26 July 64 (1 m), 27 July 66 (1 m, 2 f); LC, 8700′, 26 July 65 (1 m).

ADDITIONAL RECORDS: Charleston Mts., 14 May 34 (CDF), 6 Aug. 61 (RES); KC, 7100′, 11 June 65, 17 June 66 (s); LC, 17 June 66 (s); KC Campground, 21 June 66, 13 July 65 (s); KC, 7600′, 22 June 63, 26 June 63, 29 June 63, 5 July 62 (JFL); KC Ski Run, 22 June 78 (s); KC, 10,000-10,500′, 24 June 68 (JFE, OS); KC, 20 mi. W. U.S. 95, 28 June 77, 6 July 77 (s); Little Falls, 29 June 63 (KR), 4 July 72 (JFL); KC, 10,500-11,200′, 1 July 72 (JFL); Deer Creek Rd., 7000′, 1 July 50 (FWP); Charleston Peak trail, 9000′, 14 July 77 (s).

ADULT RESOURCES: *Lupinus* sp. (Fabaceae); *Senecio multilobatus* (Asteraceae).

Cercyonis sthenele (Boisduval) ssp.

Locally common mostly above 5000′ but occasionally as low as 3300′ on sagebrush flats or in chaparral vegetation. The single brood flies from mid June through late August.

All Nevada material was referred to previously by Emmel (1969) as *C. s. paulus* (Edwards). Clark County material and that of adjacent areas do not have the extensive white overscaling beneath as is typical of *paulus* and resemble certain material from the desert mountains of southern California. These populations most closely resemble the Rocky Mountain *C. s. masoni* Cross but probably are distinct and deserve to be named.

SPECIMENS EXAMINED: (60) KC, 15 mi. W. U.S. 95, 20 June 79 (1 m); WC, 22 June 78 (1 f), 20 July 77 (1 m, 3 f), 28 July 77 (1 m, 1 f); WC, 1 July 77 (2 m), 4 July 62 (1 m, 1 f), 20 July 78 (1 m, 2 f), 28 July 77 (2 m, 8 f); KC, 3340′, 5 July 65 (3 m); KC, 5680′, 5 July 65 (1 m), 18 July 65 (5 m); Lovell Wash, 6100′, 14 July 62 (2 m, 1 f); KC Campground, 15 July 77 (5 m), 25 July 77 (3 m); KC, 17.1 mi. W. U.S. 95, 15 July 77 (2 m, 2 f); Lovell Wash, 18 July 62 (1 f); Cold Creek Ranger Station, 20 July 77 (2 m, 1 f); RD Summit Rd., 1.5-2.1 mi. E. Lovell Wash, 27 July 77 (3 m, 4 f).

ADDITIONAL RECORDS: KC Campground, 20 June 79, 25 July 65, 1 Aug. 77 (s); RD Summit Rd., 1.5 mi. E. Lovell Wash, 22 June 77 (s); CC, 26 June 78, (s); KC, 14.5 mi. W. U.S. 95, 28 June 77, 27 July 77 (s); KC Ranger Station, 29 June 63 (KR); WC, 29 June 63 (KR); KC, 6770′, 30 June 50 (FWP); MS, 30 June 63 (KR), 30 June 69 (JFE, OS); Deer Creek Rd., 1 July 50 (FWP); mouth Sawmill Canyon, 1 July 69 (JFE, OS); Mt. Charleston, 9 July 74 (CDF); LC, 9 July 74 (CDF); Lovell Wash, 10 July 75 (CSL); KC, 17.1 mi. W. U.S. 95, 11 July 77 (s); WC, 20 July 78, 5 Aug. 77 (s); KC, 6800′, 18 July 65 (s); KC, 14 mi. W. U.S. 95, 25 July 65 (s); Charleston Mts., 31 July 65 (JL, RES); KC, 7400′, 12 Aug. 63, 18 Aug. 63 (JFL); lower KC, 24 Aug. 75 (JB).

ADULT RESOURCES: *Clematis ligusticifolia* (Ranunculaceae); *Eriodictyon angustifolium* (Hydrophyllaceae); *Tetradymia canescens, Cirsium* sp. (Asteraceae).

Dubious Records

At least five species have been attributed to the Clark County butterfly fauna based on misidentifications or poor knowledge of their distribution.

Amblyscirtes eos (Edwards).

The record for this species (1972 summ.) refers to *Pholisora alpheus* (*fide* JFL). This species should be deleted from the state list.

Ochlodes sylvanoides (Boisduval).

Herlan reported to us that a pair of this species was taken in the Overton area on 29 Sept. 66 and one of these was indicated in the Nevada State Museum catalogue. This specimen was located and proved to be a male *Polites sabuleti. Ochlodes sylvanoides* is thus apparently unknown in Clark County although it is common farther north in the state.

Ochlodes agricola (Boisduval).

Herlan reported to us that three males were taken at Warm Springs (Moapa Valley) on 27 Oct. 65 and these were listed in the Nevada State Museum catalogue. These specimens could not be located in the museum. We thus consider this species to be of hypothetical occurrence in Clark County.

Hesperia uncas lasus (Edwards).

This species was reported by Herlan (1972 summ.) for Crescent Peak in the McCullough Range.

A search of the collection at the Nevada State Museum failed to produce a specimen. No specimens are listed in their catalogue from Clark County. The species must thus be considered of hypothetical occurrence in Clark County.

Polites sonora sonora (Scudder).

The taxon is included as hypothetical based on the range "to southern Nevada" by Howe (1975). We know of no southern Nevada records although the species is regular in northern Nevada.

Faunal Composition

Clark County's butterfly fauna totals 125 taxa of 118 species. Of these, one species appears to have become locally extinct (*L. dorcas*), if it ever occurred, and at least 15 are considered non-breeding strays (*A. python, H. domicilla, C. asychis, T. pylades, P. leo, C. philodice, P. sennae, E. mexicana, L. bachmanii, P. texana, P. tharos, P. pallida, E. claudia, A. vanillae* and *C. californica*). We doubt that more than 10 to 15 species will be added to the county list in future years. It is unlikely that many new resident species will be found although such species as *Erynnis afranius* (Lintner) and *Hypaurotis crysalus* (Edwards) are possibilities in the Virgin Mountains.

The 125 taxa belong to 11 families with Lycaenidae, Nymphalidae and Hesperiidae being the most important comprising over 70% of the total fauna (Table 1). Similar species composition occurs in other areas of western North America (*e.g.*, Brown *et at.* 1957, Emmel and Emmel 1963, Opler and Langston 1968, Tidwell and Callaghan 1972).

To further consider the distribution of butterflies in Clark County, four major habitat groupings were delineated. Desert scrub occurs at low elevations generally below 4000-5000′ and includes high water table associations of mesquite. Riparian and agricultural habitat includes vegetation which requires a nearly constant water supply whether it be natural along streams or artificial as urban or cultivated areas. Middle elevations include areas above the desert scrub to approximately 7000′ and roughly delimited by the Pinon-Juniper woodland. Montane habitat is all areas above 7000′. For the present section, all species which commonly occur in the particular habitat are included.In subsequent sections, only those species which have their distributional center of abundance in a particular habitat will be considered. Species which commonly range over more than one habitat are termed widespread.

Family composition in the different habitats shows a varied pattern (Table 1). The desert scrub habitat is dominated by Pierids and Lycaenids, riparian/agricultural by Hesperiids and Nymphalids, middle elevations (which contains the most total species) by Hesperiids and Lycaenids and montane habitat by Hesperiids, Lycaenids and Nymphalids. Of the minor families, Papilionids and Satyrids are most important at the higher elevations and Riodinids at lower elevations. Similar habitat differences were noted by Emmel and Emmel (1963).

Biogeographical Analysis

The location of Clark County in the northern Mojave Desert and in close proximity to the Great Basin and Sonoran deserts make a biogeographical analysis of the biota of interest. Each species was assigned to an element based on the geographical range of the taxon (Table 2). The butterfly fauna of Clark County exhibits complex biogeographical relationships (Table 3). Forty-four percent of the species have distributions mainly in the North American deserts. About one-half are largely restricted to the Mojave Desert and one-quarter of the others are widespread desert region species. The remaining species of these have distributions in either the Great Basin or Sonoran deserts. Almost 41% of the county's species are widespread in distribution throughout North America, in western United States or in tropical regions.

Species with a widespread ecological distribution in the county are mostly of relatively wide distribution in the west as a whole or in desert regions. Desert scrub species are largely of Mojave Desert distribution. Mojave Desert and Rocky Mountain elements dominate at middle elevations. Principally montane species belong to the western North America and endemic elements.

Phenology and Voltinism

Seasonality and voltinism of the Clark County butterfly fauna were examined on the basis of number of locality-date records for each 10 day period of each month (Table 4) and by evaluating wear of specimens. It must be recognized throughout that annual climatic differences tend to lengthen the apparent flight season and to smooth out peaks and valleys of abundance.

For the county as a whole, butterflies have been recorded in every month of the year. Species number and abundance are greatest from May through July although considerable numbers of species are present in all months from April to October (Table 4). Approximately equal numbers of species are present in each month from March to October at low elevations. The number of records, however, is greatest in April and September-October indicating the peak flight period. The spring peak is mainly in desert scrub habitats; the peak in fall is of species associated with desert scrub and cultivated habitats. The flight season at high elevations extends from late April to October with a peak in June and July.

The Mojave Desert biogeographic element has a strong peak in April and a minor peak in September. The fall peak may be controlled largely by the occurrence of summer rainfall. Undoubtedly, the availability of adult and larval food resources restricts the flight season and number of broods of these, mostly desert scrub inhabiting, species. Certain species of this group occur in more riparian habitats and fly throughout the summer or occur at higher elevations and are summer univoltines.

The southwest desert element shows peaks in summer and fall. This group contains species which are widespread in the county or occur largely in riparian and agricultural habitats and have long flight seasons. The phenology of the widespread element is similar to that of the southwest desert element but becomes common somewhat earlier in the year. This group contains species found in desert scrub in spring and in cultivated areas in summer and fall. The western North America and tropical elements also show a similar seasonal pattern. They are both composed of a number of common, widespread species in the county.

The endemic element has a single peak in summer as expected of species inhabiting montane habitat.

The Great Basin element is most common in spring reflective of its composition of several spring, univoltines The Rocky Mountain element has a spring and summer peak. Too few records are available for the other elements to draw conclusions on them.

Sufficient records exist for 99 species to reach some conclusons on their voltinism (Table 2). Thirty-nine species appear to be univoltine within the county (Table 5). Twenty-eight of these occur at middle to high elevations. At middle elevations most univoltines are vernal with *S. behrii*, *L. weidemeyerii* and *C. sthenele* as summer univoltines and *A. alliae* and *E. b. ellisi* as fall univoltines. Montane univoltines fly in summer except for the spring flying *E. brizo*. Eight additional univoltines occur largely in desert scrub. Seven of these are vernal and only *E. e. dammersi* is autumnal. There are only two (both autumnal) univoltines in riparian and agricultural habitats. The only widespread univoltine is *N. antiopa*.

Twenty species appear as bivoltines (Table 5). These include four montane species (*H. comma, H. juba, P. satyrus, P. zephyrus*) with summer and fall broods. At middle elevations, there are six bivoltines. Four (*P. indra, C. spinetorum, C. siva, P. minuta*) have spring and summer broods, one (*C. sheridanii*) has spring and fall broods and one (*C. pertepida*) has summer and fall broods. Five desert scrub species are bivoltine. One (*M. leda*) occurs in mesquite stands and has summer and fall broods. The remaining four (*P. rudkini, C. neumoegeni, C. california, E. chalcedona*) have regular spring broods and irregular fall broods, apparently dependent upon summer rains. These species may be univoltine in some years. *Papilio rudkini* has occasional emergences during mid summer in some years and *C. neumoegeni* is known to have had two successive spring broods. The four bivoltines (*O. yuma, A. campestris, C. nemesis, L. archippus*) of riparian and agricultural habitats and the one widespread bivoltine (*V. virginiensis*) have summer and fall broods.

Forty Clark County species are considered multivoltine or have continuous emergences throughout their flight season (Table 5). The number and timing of broods of some may vary from year to year and with elevation. Certain species included here such as *A. mormo* may be single brooded in some colonies but have an overall pattern which indicates several broods. Such patterns need further study and may be related to the seasonal availability of suitable foodplants.

Nearly 40% of the Clark County butterfly fauna is univoltine. This frequency of univoltines is intermediate to that reported for several California butterfly faunas (Shapiro 1975). Analysis of voltinism by habitat (Table 5) presents difficulties due to the presence of widespread species which either stray to high elevations or have different breeding strategies under different ecological conditions. For these reasons, species were separated by principal habitat preference. The overall pattern is an increase in univoltinism with increasing elevation (Table 5) as noted in other studies (Shapiro 1974, 1975). Univoltinism is primarily vernal at low (70%)

and middle (62%) elevations and a summer phenomenon (93%) at high elevations. Vernal univoltinism is the usual situation in long summer faunas (Shapiro 1975) and the northern Mojave Desert pattern contrasts sharply with the exception found for a Sonoran Desert butterfly fauna (Austin 1978). The difference between the two desert faunas can be accounted for by the lack of a regular summer rainy season in the Mojave Desert. Multivoltinism in low desert butterflies is largely limited to species with desert riparian affinities where foodplants remain green through the summer.

Of the important biogeographical entities in Clark County, the Mojave Desert element has the greatest number of univoltines (Table 6). Species which fly in spring and/or fall (spring and fall univoltines, spring-fall bivoltines) comprise 68% of the species in this element. Thus the group as a whole exhibits adaptation to the generally favorable springs, often favorable falls and usually unfavorable remainder of the year that is typical of the Mojave Desert. The Great Basin and Rocky Mountain elements are also represented by a large proportion of (mainly spring) univoltines (Table 6).

The southwest desert and widespread elements are largely multivoltine (Table 6). Most of these species are either widespread in the county or occur in riparian and

Phenology, voltinism and abundance are highly variable especially in the lower desert. These variations, as mentioned above, are ultimately due to various climatic factors, particularly rainfall and proximately to the resultant condition of the vegetation. Warm temperatures in late winter promote early emergence of a number of species. Later in spring, this early flight may be interrupted or terminated

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TABLE 1. Composition of the Clark County, Nevada, butterfly fauna by families.

	County (%)	Desert Scrub (%)	Riparian/ Agriculture (%)	Middle Elevations (%)	Montane (%)
Megathymidae	1.6	2.4	0.0	3.1	0.0
Hesperiidae	22.2	11.9	26.8	21.9	22.7
Papilionidae	4.8	2.4	2.4	4.7	4.5
Pieridae	12.7	26.2	17.1	15.6	13.6
Riodinidae	3.2	4.8	4.9	1.6	0.0
Lycaenidae	24.6	31.0	17.1	26.6	22.7
Libytheidae	0.8	2.4	2.4	1.6	0.0
Nymphalidae	24.6	16.7	22.0	18.8	31.8
Heliconiidae	0.8	0.0	2.4	0.0	0.0
Danaidae	1.6	2.4	4.9	3.1	2.3
Satyridae	3.2	0.0	0.0	3.1	2.3
Total Species	126	42	41	64	44

TABLE 2. Biogeographic affinities, voltinism and habitat data for Clark County, Nevada, butterflies.

Taxon	Biogeographical Affinity[1]	Voltinism[2]	Primary Habitat[3]
Agathymus alliae ssp.	MD	U (F)	ME
Megathymus yuccae navajo	MD	U (S)	DS
Lerodea eufala	WS	M	RA
Atrytonopsis python	SWD	-	-
Ochlodes yuma	MD	B (SU,F)	RA
Atalopedes campestris	WS	B (SU,F)	RA
Polites sabuleti ssp.	WNA	M	RA
Polites draco	RM	-	-
Hesperia comma harpalus	GB	B (SU,F)	M
Hesperia nevada	SN	-	M
Hesperia pahaska martini	MD	-	-
Hesperia juba	WNA	B (SU,F)	M
Hylephila phyleus	WS	M	RA
Copaeodes aurantiaca	WNA	M	RA
Pholisora libya libya	MD	M	RA
Pholisora gracielae	MD	M	RA
Pholisora alpheus oricus	GB	U (S)	ME

Taxon	Biogeographical Affinity[1]	Voltinism[2]	Primary Habitat[3]
Heliopetes domicella domicella	T	-	-
Heliopetes ericetorum	WNA	M	WS
Pyrgus scriptura	WNA	M	WS
Pyrgus communis	WS	M	WS
Erynnis brizo burgessi	RM	U (S)	M
Erynnis funeralis	T	M	RA
Erynnis meridianus meridianus	SWD	M	M
Erynnis telemachus	RM	U (S)	ME
Chiomara asychis georgina	T	-	-
Systasea zampa	SWD	M	RA
Thorybes pylades	WS	-	-
Polygonus leo arizonensis	SWD	-	-
Epargyreus clarus huachuca	SD	-	ME
Battus philenor philenor	WS	-	-
Papillio bairdii bairdii	WNA	-	M
Papilio rudkini	MD	B (S,F)	DS
Papilio indra martini	MD	B (S,SU)	ME
Papilio rutulus rutulus	WNA	U (SU)	M
Papilio multicaudatus	WNA	-	ME
Neophasia menapia	WNA	U (SU)	M
Pieris beckerii beckerii	WNA	M	ME
Pieris sisymbrii elivata	RM	U (S)	ME
Pieris protodice protodice	WS	M	WS
Pieris rapae	WS	M	WS
Colias eurytheme	WS	M	WS
Colias philodice philodice	WS	-	-
Colias alexandra edwardsii	GB	U (S)	DS
Colias cesonia	WS	M	WS
Phoebis sennae marcellina	T	-	-
Eurema mexicana	T	-	-
Eurema nicippe	WS	M	WS
Nathalis iole	T	M	WS
Anthocaris pima	SD	U (S)	DS
Anthocaris sara thoosa	MD	U (S)	ME
Euchloe hyantis lotta	MD	U (S)	ME
Apodemia mormo mormo	GB	M	WS
Apodemia palmeri marginalis	MD	M	DS
Calephelis nemesis californica	SCM	B (SU,F)	RA
Calephelis wrightii	SCM	M	RA
Satyrium behrii behrii	SN	U (SU)	ME
Ministrymon leda	SD	B (SU,F)	DS
Callophrys fotis fotis	GB	U (S)	ME
Callophrys eryphon eryphon	WNA	-	-
Callophrys spinetorum	WNA	B (S,SU)	ME
Callophrys siva siva	RM	B (S,SU)	ME
Callophrys sheridanii comstocki	MD	B (S,F)	ME
Atlides halesus corcorani	WNA	M	DS
Strymon melinus pudica	SWD	M	WS
Lycaena helloides	WS	M	RA
Lycaena dorcas castro	RM	-	-
Brephidium exilis	T	M	WS

Taxon	Biogeographical Affinity[1]	Voltinism[2]	Primary Habitat[3]
Leptotes marina	T	M	WS
Hemiargus ceraunus gyas	SWD	M	WS
Hemiargus isola alce	WS	M	WS
Plebejus melissa melissa	WNA	U (F)	RA
Plebejus icarioides evius	SCM	U (SU)	M
Plebejus shasta charlestonensis	E	U (SU)	M
Plebejus acmon acmon	SN	M	WS
Plebejus acmon texanus	SWD	M	WS
Everes amyntula	WNA	U (SU)	M
Euphilotes battoides nr. *ellisii*	MD	U (F)	ME
Euphilotes battoides martini	MD	U (S)	DS
Euphilotes battoides baueri	GB	-	-
Euphilotes enoptes ssp.	E	U (SU)	M
Euphilotes enoptes dammersi	MD	U (F)	DS
Euphilotes mojave ssp.	MD	U (S)	ME
Philotiella speciosa speciosa	MD	U (S)	DS
Glaucopsyche lygdamus ssp.	MD	U (S)	DS
Glaucopsyche lygdamus oro	RM	U (SU)	M
Celastrina argiolus cinerea	RM	M	WS
Libytheana bachmanii larvata	SWD	-	WS
Asterocampa celtis montis	SD	-	ME
Limenitis archippus absoleta	SWD	B (SU,F)	RA
Limenitis weidemeyerii angustifascia	SD	U (SU)	ME
Limenitis weidemeyerii nevadae	E	U (SU)	M
Adelpha bredowii eulalia	SWD	M	WS
Vanessa atalanta rubria	WS	M	WS
Vanessa virginiensis	WS	B (SU,F)	WS
Vanessa cardui	WS	M	WS
Vanessa annabella	WNA	M	WS
Precis coenia	WS	M	WS
Nymphalis californica	WNA	U (SU)	M
Nymphalis milberti furcillata	WNA	U (SU)	M
Nymphalis antiopa antiopa	WS	U (SU)	WS
Polygonia satyrus satyrus	WS	B (SU,F)	M
Polygonia zephyrus	WNA	B (SU,F)	M
Chlosyne palla vallismortis	MD	U (SU)	M
Chlosyne neumoegeni neumoegeni	MD	B (S,F)	DS
Chlosyne lacinia crocale	SWD	M	RA
Chlosyne californica	MD	B (S,F)	DS
Anthanassa texana texana	T	-	-
Phyciodes tharos distincta	SWD	-	-
Phyciodes phaon	WS	U (F)	RA
Phyciodes pallida barnesi	RM	-	-
Phyciodes mylitta mylitta	SN	-	M
Thessalia leanira alma	GB	U (S)	DS
Poladryas minuta arachne	RM	B (S,F)	ME
Euphydryas chalcedona kingstonensis	MD	B (S,F)	DS
Euphydryas anicia morandi	E	U (SU)	M
Euphydryas anicia ssp.	RM	U (S)	ME
Speyeria zerene carolae	E	U (SU)	M

Taxon	Biogeographical Affinity [1]	Voltinism [2]	Primary Habitat [3]
Euptoieta claudia	WS	-	-
Agraulis vanillae incarnata	SWD	M	WS
Danaus plexippus plexippus	WS	M	WS
Danaus gilippus strigosus	SWD	M	WS
Cyllopsis pertepida dorothea	RM	B (SU,F)	ME
Coenonympha california california	SCM	-	-
Coenonympha ochracea brenda	GB	U (SU)	M
Cercyonis sthenele ssp.	E	U (SU)	ME

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[1] E = Endemic, MD = Mojave Desert, GB = Great Basin, SD = Sonoran Desert, SWD = Southwest Desert, SN = Sierra Nevada, RM = Rocky Mountain, SCM = Southern California Mediterranean, T = Tropical, WNA = Western North America, WS = Widespread.

[2] U = univoltine, B = bivoltine, M = multivoltine, S = spring, SU = summer, F = fall, dash indicates insufficient data.

[3] DS = Desert Scrub, RA = Riparian/Agriculture, ME = Middle Elevations, M = Montane, WS = Widespread, dash indicates insufficient data.

TABLE 3. Biogeographic affinities of the Clark County, Nevada butterfly fauna.

Element	Entire County (%)	Primary Habitat				
		Widespread (%)	Agriculture/ Riparian (%)	Desert Scrub (%)	Middle Elevations (%)	Montane (%)
Endemic	4.0	0.0	0.0	0.0	0.0	25.0
Mojave Desert	18.3	0.0	17.6	66.7	40.0	5.0
Great Basin	6.3	3.7	0.0	13.3	10.0	10.0
Sonoran Desert	4.0	0.0	0.0	13.3	5.0	0.0
Southwest Desert	11.1	18.5	17.6	0.0	0.0	5.0
Sierra Nevada	3.2	3.7	0.0	0.0	5.0	0.0
Rocky Mountain	9.5	3.7	0.0	0.0	30.0	10.0
So. California Mediterranean	3.2	0.0	11.8	0.0	0.0	5.0
Tropical	7.1	11.1	5.9	0.0	0.0	0.0
Western North America	15.1	11.1	17.6	6.7	10.0	35.0
Widespread	18.3	48.1	29.4	0.0	0.0	5.0
Number of species	126	27	17	15	20	20

TABLE 4. Seasonal distribution of the Clark County, Nevada, butterfly fauna by 10 day periods (each date-locality record counts as one).

Taxon	Month											
	J	F	M	A	M	J	J	A	S	O	N	D
MEGATHYMIDAE												
A. alliae	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - 2	3 3 1	1 - -	- - -
M. yuccae	- - -	- - -	1 2 10	6 10 10	10 6 3	- - -	- - -	- - -	- - -	- - -	- - -	- - -
HESPERIIDAE												
L. eufala	- - -	- - -	- - -	- - -	1 - -	2 2 1	2 - 2	2 1 2	5 7 10	6 6 5	3 2 -	- - -
A. python	- - -	- - -	- - -	- - -	- - -	- - 1	- - -	- - -	- - -	- - -	- - -	- - -
O. yuma	- - -	- - -	- - -	- - -	- - -	4 3 10	4 3 2	2 - 1	7 5 11	4 3 2	1 1 -	- - -
A. campestris	- - -	- - -	- - -	- - -	- - -	- - -	2 - -	- - -	- - -	2 1 2	- - -	- - -
P. sabuleti	- - -	- - -	- - -	- 2 1	1 1 -	- - 3	1 - -	1 1 2	4 4 9	3 2 5	1 - -	- - -
P. draco	- - -	- - -	- - -	- - -	- - -	- 1 -	- - -	- - -	- - -	- - -	- - -	- - -
H. comma	- - -	- - -	- - -	- - -	- 1 1	2 2 10	10 8 5	4 1 3	1 1 8	2 4 1	- - -	- - -
H. nevada	- - -	- - -	- - -	- - -	- 1 -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
H. pahaska	- - -	- - -	- - -	- - -	- - -	- - -	2 - -	- - -	- - -	- - -	- - -	- - -
H. juba	- - -	- - -	- - -	- - -	- - 2	2 - 1	1 2 -	- - -	1 - 1	1 - 1	- - -	- - -
H. phyleus	- - -	- - -	- - 1	1 6 1	4 1 -	5 6 16	7 9 10	10 7 9	9 12 21	15 14 12	8 3 2	1 1 -
C. aurantiaca	- - -	- - -	1 1 1	1 5 2	6 5 4	6 7 10	9 12 8	7 2 7	9 14 8	11 6 3	5 1 2	1 - -
P. libya	- - -	- - -	- - -	- 1 1	5 3 1	3 3 5	- - 1	- - -	3 5 5	2 1 -	- - -	- - -
P. gracielae	- - -	- - -	- - -	- 2 -	3 1 -	1 4 3	4 3 1	1 - 3	3 1 1	- - -	- - -	- - -
P. alpheus	- - -	- - -	- 1 2	2 8 13	5 5 1	- - -	- - -	- - -	- - -	- - -	- - -	- - -
H. domicella	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- 1 -	- - -	- - -
H. ericetorum	- - -	- - -	- - 1	1 4 7	15 20 23	16 14 31	16 8 8	2 2 4	5 13 21	16 14 9	4 - -	- - -
P. scriptura	- - -	- - -	- - 2	2 3 8	6 3 2	4 3 9	2 1 1	- - -	1 1 2	- - 2	- 1 -	- - -
P. communis	- - -	1 1 -	- 2 9	10 27 33	31 22 15	16 17 43	33 23 15	14 3 5	7 8 16	21 26 24	15 13 1	1 3 1
E. brizo	- - -	- - -	- - 4	2 3 10	6 8 5	3 3 -	- - -	- - -	- - -	- - -	- - -	- - -
E. funeralis	- - -	- - -	- 2 3	3 9 1	3 7 2	2 - 2	1 1 2	- - 1	- 5 4	1 1 1	- - -	- - -

Taxon	Month											
	J	F	M	A	M	J	J	A	S	O	N	D
E. meridianus	- - -	- - -	- 1 2	2 2 7	7 5 7	10 16 14	6 2 1	1 - -	1 2 -	- - -	- - -	- - -
E. telemachus	- - -	- - -	- - -	- - -	1 2 2	1 - -	- - -	- - -	- - -	- - -	- - -	- - -
C. asychis	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - 1	- - -	- - -	- - -
S. zampa	- - -	- - -	- - -	- 3 -	1 - 1	- - -	- - 2	- - -	- 2 1	- - -	- - -	- - -
T. pylades	- - -	- - -	- - -	- - -	- - -	- - 2	- - -	- - -	- - -	- - -	- - -	- - -
P. leo	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- 1 1	1 - -	- - -	- - -
E. clarus	- - -	- - -	- - -	- - -	- 1 2	1 - 1	- - -	- - -	- - -	- - -	- - -	- - -
PAPILIONIDAE												
B. philenor	- - -	- - -	- - -	- - 1	1 - -	- 1 1	- 1 2	1 - 2	1 - 1	1 - -	- - -	- - -
P. bairdii	- - -	- - -	- - -	- - -	- - -	- 2 1	- - -	1 - -	- - -	- - -	- - -	- - -
P. rudkini	- - -	- 2 -	- 4 10	10 25 22	20 26 15	5 2 5	3 1 2	- 2 3	4 3 22	14 5 -	1 - 1	- - -
P. indra	- - -	- - -	- 1 -	- 2 2	- - -	- 1 3	2 - -	- - -	- - -	- - -	- - -	- - -
P. rutulus	- - -	- - -	- - -	- - -	- - 3	1 7 16	17 9 6	1 - -	- - -	- - -	- - -	- - -
P. multicaudatus	- - -	- - -	- - -	- - 1	1 4 1	1 - 1	- - -	- - -	- - -	- - -	- - -	- - -
PIERIDAE												
N. menapia	- - -	- - -	- - -	- - -	- - -	- - -	- - 1	4 2 1	- - -	- - -	- - -	- - -
P. beckerii	- - -	- - -	1 1 6	7 5 4	9 7 7	7 5 10	6 4 2	4 - -	2 - 2	2 2 1	- 1 -	- - -
P. sisymbrii	- - -	- - -	- 1 8	5 20 9	6 3 -	- 1 -	- - -	- - -	- - -	- - -	- - -	- - -
P. protodice	1 - 1	3 8 6	5 6 10	12 32 28	33 36 25	24 37 38	29 23 19	11 2 5	7 6 8	10 9 11	15 16 3	4 - -
P. rapae	- - 1	1 3 3	5 4 6	4 5 11	7 13 8	11 7 11	10 8 7	4 5 3	3 4 4	9 13 8	3 2 3	6 1 -
C. eurytheme	- - -	- 1 2	5 2 8	6 12 19	15 21 11	13 18 26	26 26 19	16 13 20	24 29 39	36 33 22	14 10 2	1 1 -
C. philodice	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- 1 -	- - -	- - -
C. alexandra	- - -	- - -	- - -	- 2 5	1 2 -	- - -	- - -	- - -	- - -	- 1 -	- - -	- - -
C. cesonia	- - -	- 1 -	- - 1	- 6 4	5 7 5	3 2 2	6 1 6	1 - 1	1 - -	- - 1	- 1 -	- - -
P. sennae	- - -	- - -	- - -	1 4 1	1 1 -	1 - 1	2 - -	- 1 -	- - -	- - -	- - -	- - -
E. mexicana	- - -	- - -	- - 1	- 2 -	1 - 1	- - -	- - -	- - -	- - -	- - -	- - -	- - -
E. nicippe	- - 1	1 4 -	1 2 2	4 8 7	12 13 5	2 - 5	8 6 4	5 1 2	- 4 3	8 13 10	8 5 -	- 1 -
N. iole	- - -	3 1 1	- - -	1 10 3	8 20 11	11 8 18	15 3 7	- - 1	1 - 3	2 3 2	2 - -	- 1 -

Taxon	Month											
	J	F	M	A	M	J	J	A	S	O	N	D
A. pima	- - -	- 2 4	7 5 13	4 9 7	5 - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
A. sara	- - -	- 1 -	- 1 12	5 14 11	5 2 1	- - -	- - -	- - -	- - -	- - -	- - -	- - -
E. hyantis	- - -	- - -	2 4 10	9 14 14	9 5 -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
RIODINIDAE												
A. mormo	- - -	2 1 1	4 3 5	8 22 11	8 8 1	1 1 4	1 4 4	- 1 4	9 11 17	14 13 11	6 1 -	- - -
A. palmerii	- - -	- - -	- - -	- 1 -	2 5 6	9 4 4	5 1 5	1 3 3	9 9 8	2 2 -	- - -	- - -
C. nemesis	- - -	- - -	- - -	- - -	- - -	- - -	- - 1	- - -	1 1 1	- 1 1	- - -	- - -
C. wrighti	- - -	- - -	- - -	- - -	- - -	- - -	- - 1	- - -	- 3 1	- - 1	1 - -	- - -
LYCAENIDAE												
S. behrii	- - -	- - -	- - -	- - -	- - -	1 1 4	- 1 -	- - -	- - -	- - -	- - -	- - -
M. leda	- - -	- - -	- - -	- 1 -	1 - 1	1 - 3	2 2 2	1 1 -	- - -	- 1 -	- - -	- - -
C. fotis	- - -	- - -	- - 7	6 10 15	8 2 -	- 1 -	- - -	- - -	- - -	- - -	- - -	- - -
C. eryphon	- - -	- - -	- - -	- - -	- 1 -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
C. spinetorum	- - -	- - -	- - -	2 - 5	1 1 2	1 2 4	1 6 1	1 - -	- - -	- - -	- - -	- - -
C. siva	- - -	- - -	- - 3	2 6 9	6 5 3	7 9 15	9 6 3	- - -	- - -	- - -	- - -	- - -
C. sheridanii	- - -	- - -	- - 7	5 4 -	1 - -	- - -	- - -	- - 2	3 1 -	- - -	- - -	- - -
A. halesus	- - -	- - 2	3 6 8	8 10 4	2 7 6	8 1 6	6 3 5	3 1 -	3 10 6	7 5 6	6 2 -	2 1 -
S. melinus	- - -	- - -	- - 1	2 4 6	15 15 11	11 4 19	12 22 13	7 2 3	5 5 7	7 3 8	4 1 -	- - -
L. helloides	- - -	- - -	- - -	- 1 -	- 1 -	2 1 1	1 - 1	1 - 1	1 1 4	2 1 3	- - -	- - -
L. dorcas	- - -	- - -	- - -	- - -	- - -	- - -	- - 1	- - -	- - -	- - -	- - -	- - -
B. exilis	- - -	- - -	5 3 9	8 13 6	12 17 18	12 12 26	18 15 9	7 2 14	17 13 20	26 31 23	25 17 4	7 1 -
L. marina	- - -	- - -	- - 2	9 6 5	14 21 18	24 25 44	37 21 17	10 4 8	4 5 8	3 5 6	4 1 -	- - -
H. ceraunus	- - -	- - -	- - -	1 5 1	5 4 5	2 3 5	13 8 14	6 3 5	2 10 8	12 11 5	8 2 -	- 2 -
H. isola	- - -	- - -	- - -	3 8 6	9 14 9	10 7 24	20 15 17	3 - -	- - -	- - 1	- - -	- - -
P. melissa	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	2 - 1	1 1 1	- - -	- - -
P. icarioides	- - -	- - -	- - -	- - -	- 3 1	2 8 16	23 18 12	2 2 4	1 - -	1 - -	- - -	- - -
P. shasta	- - -	- - -	- - -	- - -	- - -	- - -	3 1 6	- 2 -	- - -	- - -	- - -	- - -
P. a. acmon	- - -	- - -	- - 1	- - -	- 1 2	1 - 1	2 - 2	2 - -	- - 1	- - 1	- - -	- - -

Taxon	Month											
	J	F	M	A	M	J	J	A	S	O	N	D
P. a. texanus	- - -	- - -	- - 1	- - 5	4 9 4	5 3 11	19 9 6	2 1 2	1 2 1	3 8 2	- - -	- - -
E. amyntula	- - -	- - -	- - -	- - -	- 1 2	3 3 3	1 2 3	- - 1	- - -	1 - -	- - -	- - -
E. b. martini	- - -	- - -	- 2 2	3 5 2	9 10 4	- - -	- - -	- - -	- - -	- - -	- - -	- - -
E. b. baueri	- - -	- - -	- - -	- 1 -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
E. b. ellisii	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- 1 2	3 1 -	- - -	- - -	- - -
E. enoptes ssp.	- - -	- - -	- - -	- - -	- - -	2 3 1	2 5 3	- 1 -	- - -	- - -	- - -	- - -
E. e. dammersi	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- 5 4	1 - -	- - -	- - -
E. mojave	- - -	- - -	- - -	- - -	1 3 1	1 - -	- - -	- - -	- - -	- - -	- - -	- - -
P. speciosa	- - -	- - -	- - -	- 1 -	- - -	- 1 -	- - -	- - -	- - -	- - -	- - -	- - -
G. lygdamus ssp.	- - -	- - -	- - -	2 6 7	1 1 -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
G. l. oro	- - -	- - -	- - -	- - -	- - -	- 1 -	1 - 1	- - -	- - -	- - -	- - -	- - -
C. argiolus	- - -	- - -	- 1 7	3 5 11	6 8 14	9 16 21	18 18 17	7 4 4	5 6 5	1 2 1	- - -	- - -
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L. bachmanii	- - -	- - -	- - 1	- - -	1 - -	- - 1	- - -	- - 1	1 2 2	6 7 15	11 5 2	- 2 -
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L. archippus	- - -	- - -	- - -	- - -	- - -	2 4 3	3 1 2	3 - 2	2 - 3	4 1 1	- - -	- - -
L. w. angustifascia	- - -	- - -	- - -	- - -	- 1 1	1 - 2	- - -	- - -	- - -	- - -	- - -	- - -
L. w. nevadae	- - -	- - -	- - -	- - -	- - 1	4 11 29	39 13 14	1 1 1	- - -	- - -	- - -	- - -
A. bredowii	- - -	- - -	- - -	- 2 1	2 6 4	5 9 24	11 5 2	1 1 1	4 8 12	4 9 3	1 - -	- - -
V. atalanta	- - -	- - -	- - 1	- 2 2	1 - 1	1 4 3	2 2 1	- - 1	- - 4	3 11 5	3 - 1	- - -
V. virginiensis	- - -	- - -	- - -	- - -	- - -	- 4 4	3 4 2	1 - -	- 1 2	1 2 3	1 - -	- - -
V. cardui	1 1 2	4 4 3	4 4 20	18 26 24	20 24 13	9 9 14	8 12 12	8 7 11	12 20 27	28 22 21	14 14 3	5 2 1
V. annabella	- - -	3 7 3	3 5 5	7 6 18	14 14 7	10 11 17	7 14 8	2 3 5	5 11 15	15 18 21	9 11 2	1 2 1
P. coenia	- - -	- - -	- - -	- 1 1	1 3 3	3 2 7	3 2 5	1 - 3	3 6 9	2 6 5	3 1 -	- - -
N. californica	- - -	- - -	- - -	- - -	- - -	1 1 5	2 - 1	1 1 -	- - -	- 1 -	- - -	- - -
N. milberti	- - -	- - -	- - -	- - 1	- 1 -	- - 3	1 - -	- - -	- - -	- - -	- - -	- - -
N. antiopa	- - -	1 - -	- - 7	1 2 2	5 11 8	6 7 17	13 7 3	1 - 3	4 1 8	1 3 -	1 3 -	- - -
P. satyrus	- - -	- - -	- - 1	- - 1	- - -	1 3 8	6 2 2	1 - 2	- - -	- 2 1	- - -	- - -
P. zephyrus	- - -	- - -	- - 2	- - -	- - 1	- - 7	7 11 2	4 2 -	- - 7	6 3 1	- - -	- - -

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C. palla	- - -	- - -	- - -	- - -	- 1 -	- 3 3	7 3 -	- - -	- - -	- - -	- - -	- - -
C. neumoegeni	- - 1	2 - -	6 11 19	25 47 26	17 10 3	2 - -	- - -	- - -	5 6 5	3 6 2	1 - -	- - -
C. lacinia	- - -	- - -	- - -	- 4 3	2 2 -	3 4 2	4 3 2	3 1 7	7 5 9	4 - 3	- - -	- - -
C. californica	- - -	- - -	- 1 1	1 11 2	8 5 5	3 - 1	- - -	- - -	1 - 10	3 1 2	- - -	- - -
A. texana	- - -	- - -	- - -	- 3 -	- 1 -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
P. tharos	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	1 - -	- - -	- - -	- - -
P. phaon	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- 1 -	2 3 -	1 - -	- - -
P. pallida	- - -	- - -	- - -	- - -	- - -	- - -	- 1 -	- - -	- - -	- - -	- - -	- - -
P. mylitta	- - -	- - -	- - -	- - -	- - -	- - 2	- - -	- - -	- - -	- - -	- - -	- - -
T. leanira	- - -	- - -	- - -	- 6 12	13 10 3	- 1 -	- - -	- - -	- - -	- - -	- - -	- - -
P. minuta	- - -	- - -	- - -	- - 1	4 7 1	1 2 1	- - -	- - -	1 1 1	1 1 -	- - -	- - -
E. chalcedona	- - -	- - -	- 1 1	1 7 1	4 2 2	2 - -	- - -	- 1 -	- 1 2	- - -	- - -	- - -
E. a. morandi	- - -	- - -	- - -	- - -	4 4 -	1 - 3	5 4 -	- - -	- - -	- - -	- - -	- - -
E. anicia ssp.	- - -	- - -	- - -	2 2 1	1 3 -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
S. zerene	- - -	- - -	- - -	- - -	- - -	- 5 13	17 26 18	8 3 4	1 - 1	- 1 -	- - -	- - -
E. claudia	- - -	- - -	- 1 -	- - -	- - -	- - 1	1 - -	- - 1	- - -	- - -	- - -	- - -
A. celtis	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- 1 -	- 1 -	- - -	- - -
HELICONIIDAE												
A. vanillae	- - -	- - -	- - -	- - 1	1 - -	- 1 -	- - -	- - -	- - -	- - -	- - -	- - -
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D. plexippus	- - -	1 - -	- 1 5	1 6 1	5 4 6	7 - 10	8 9 13	17 7 15	15 17 31	28 22 14	10 4 1	- - 1
D. gilippus	- - 1	1 1 -	- - -	1 8 2	7 13 9	11 11 16	15 14 10	8 4 3	2 14 10	10 7 7	7 - -	- 1 -
SATYRIDAE												
C. pertepida	- - -	- - -	- - -	- - -	- - 1	1 - 1	- - -	- - -	- 2 -	- 1 -	- - -	- - -
C. california	- - -	- - -	- - -	- - -	- - -	- - 1	- - -	- - -	- - -	- - -	- - -	- - -
C. ochracea	- - -	- - -	- - -	- - -	- 2 -	- 5 12	8 8 4	1 - -	- - -	- - -	- - -	- - -
C. sthenele	- - -	- - -	- - -	- - -	- - -	- 2 9	9 11 8	2 - 1	- - -	- - -	- - -	- - -

The Journal of Research on the Lepidoptera
[illegible] Vol 19 no. 1

TABLE 5. Voltinism of the Clark County, Nevada, butterfly fauna.

Primary Habitat	No. of Species	Univoltines (%)	Bivoltines (%)	Multivoltines (%)
Widespread	27	3.7	3.7	92.6
Agriculture-Riparian	17	11.8	23.5	64.7
Desert Scrub	15	53.3	33.3	13.3
Middle Elevations	20	65.0	30.0	5.0
Montane	20	75.0	20.0	5.0
County	99	39.4	20.2	40.4

TABLE 6. Voltinism of the Clark County, Nevada, butterfly fauna to biogeographic affinities.

Biogeographical Element	Percent		
	Univoltine	Bivoltine	Multivoltine
Endemic	100.0	0.0	0.0
Mojave Desert	54.5	31.8	13.6
Great Basin	71.4	14.3	14.3
Sonoran Desert	66.7	33.3	0.0
Southwest Desert	0.0	11.1	88.0
Sierra Nevada	50.0	0.0	50.0
Rocky Mountain	55.6	33.3	11.1
So. California Mediterranean	33.3	33.3	33.3
Tropical	0.0	0.0	100.0
Western North America	37.5	18.8	43.6
Widespread	10.5	15.8	73.8